

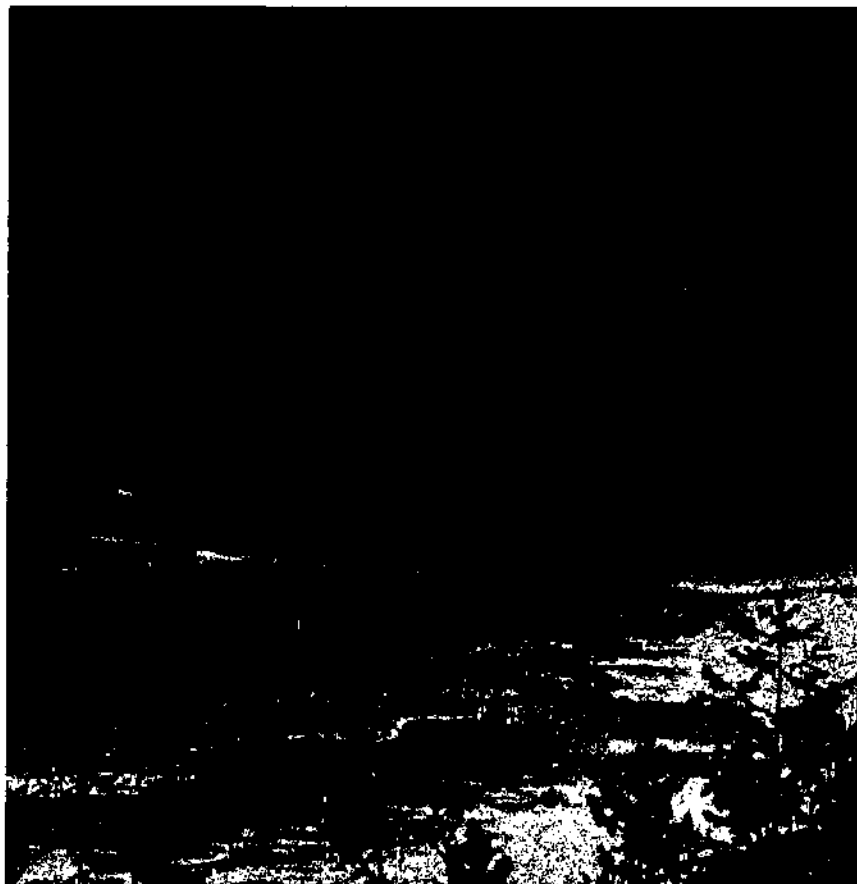
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**KOOTENAI DEVELOPMENT COMPANY
FLYWAY SITE
LIBBY, MONTANA
REMOVAL ACTION WORK PLAN**



**Prepared By:
Remedium Group, Inc.
A Subsidiary of W. R. Grace & Co.
6401 Poplar Ave., Suite 301
Memphis, TN 38119**

August, 2003

DRAFT

Kootenai Development Company

Flyway Property

Removal Action Work Plan

Prepared by:

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Contents

| | |
|---|-----|
| Section 1 – Introduction..... | 1-1 |
| 1.1 Project Understanding..... | 1-1 |
| 1.2 Background Information for the KDC Flyway Site..... | 1-1 |
| 1.2.1 Current Site Usage..... | 1-1 |
| 1.2.2 Historic Site Usage..... | 1-2 |
| 1.2.3 Site Area (Acreage)..... | 1-2 |
| 1.2.4 General Site Condition..... | 1-3 |
| 1.2.5 Soil Conditions..... | 1-3 |
| 1.2.6 Existing Infrastructure and Utilities..... | 1-3 |
| 1.2.7 Availability of Water..... | 1-3 |
| 1.2.8 Existing Vegetation..... | 1-3 |
| 1.2.9 Surrounding Properties..... | 1-3 |
| 1.2.10 Excavation Considerations..... | 1-4 |
| 1.2.11 Cultural Resource Survey..... | 1-4 |
| Section 2 – Summary of Work Completed in 2001..... | 2-1 |
| Section 3 – Summary of Work Planned for 2003..... | 3-1 |
| 3.1 Planning Activities..... | 3-1 |
| 3.1.1 Introduction..... | 3-1 |
| 3.1.2 Health and Safety Plan Requirements..... | 3-1 |
| 3.1.3 Air Monitoring Requirements..... | 3-1 |
| 3.1.4 Sampling and Analysis..... | 3-1 |
| 3.1.5 Decontamination and Dust..... | 3-1 |
| 3.1.6 Confirmatory Soil Sampling..... | 3-2 |
| 3.1.7 Erosion Control..... | 3-2 |
| 3.1.8 Final Site Restoration..... | 3-2 |
| 3.2 Removal Activities..... | 3-2 |
| 3.2.1 Contractor Mobilization..... | 3-2 |
| 3.2.2 Temporary Facilities..... | 3-2 |
| 3.2.3 Decontamination Facilities..... | 3-3 |
| 3.2.4 Tree Protection and Removal..... | 3-3 |
| 3.2.5 Soil Excavation and Disposal..... | 3-3 |
| 3.2.6 Confirmatory Soil Sampling | 3-4 |
| 3.2.7 Transformer Removal and Disposal..... | 3-4 |
| 3.2.8 Transportation and Disposal Considerations..... | 3-4 |
| 3.2.9 Backfilling and Compaction..... | 3-4 |
| 3.2.10 Topsoil and Hydroseeding..... | 3-4 |
| 3.2.11 Final Site Restoration..... | 3-5 |
| 3.2.12 Document Control | 3-5 |
| Section 4 – Remedium Management..... | 4-1 |
| Section 5 – Project Schedule..... | 5-1 |

Figures

- Figure 1-1 – Site Locus Plan
- Figure 1-2 – Site Location Plan
- Figure 1-3 – General Site Layout
- Figure 1-4 – Sketch Map for Archaeological Site 24LN1045
- Figure 2-1 – Areas of Soil Removal for 2003
- Figure 5-1 - Proposed Project Schedule – 2003

Appendices

- Appendix A - Health and Safety Plan
- Appendix B - Quality Assurance Project Plan
- Appendix C - Sampling and Analysis Plan
- Appendix D - Dust Control Plan
- Appendix E - Erosion Control Plan
- Appendix F - Traffic Control Plan
- Appendix G - Document Control Plan
- Appendix H - Site Photographs

Acronyms

| | |
|-----------------|--|
| AHERA | Asbestos Hazard Emergency Response Act |
| AIFF | additional information field form |
| ASTM | American Society for Testing and Materials |
| ATSDR | Agency for Toxic Substances and Disease Registry |
| BD | building location identification number |
| BIFF | background information field form |
| CAG | community advisory group |
| CAR | corrective action request |
| CDM | CDM Federal Programs Corporation |
| CIC | community involvement coordinator |
| cm ² | centimeter squared |
| COC | chain-of-custody |
| CSF | close support facility |
| CSS | contaminant screening study |
| DI | deionized water |
| DQOs | data quality objectives |
| eCOC | electronic chain-of-custody |
| EDD | electronic data deliverable |
| EPA | U.S. Environmental Protection Agency |
| ERB | Emergency Response Branch |
| FAQ | frequently asked questions |
| FSDS | field sample data sheet |
| FSP | field sampling plan |
| g | gram |
| GIS | geographic information system |
| GLP | good laboratory practices |
| GPS | global positioning system |
| Grace | W.R. Grace |
| HASP | health and safety plan |
| HDPE | high-density polyethylene |
| HSO | health and safety officer |
| ID | identification |
| IDW | investigation-derived waste |
| IFF | information field form |
| in. | inches |
| KNF | Kootenai National Forest |
| L | liter |
| LA | Libby amphibole |
| LCS | laboratory control sample |
| MCE | mixed cellulose ester |
| MDEQ | Montana Department of Environmental Quality |
| mi ² | miles squared |
| mm | millimeter |
| NIOSH | National Institute of Occupational Safety and Health |

| | |
|-------------------|--|
| NIST | National Institute of Standards and Technology |
| NPL | National Priorities List |
| NVLAP | National Voluntary Laboratory Accreditation Program |
| OSHA | Occupational Safety and Health Administration |
| OU | operable unit |
| PLM | polarized light microscopy |
| PM | project manager |
| PPE | personal protective equipment |
| QA | quality assurance |
| QAC | quality assurance coordinator |
| QAM | quality assurance manager |
| QAPP | quality assurance project plan |
| QC | quality control |
| QMP | quality management plan |
| QP | quality procedure |
| RAC | Response Action Contract |
| RI | remedial investigation |
| RPD | relative percent difference |
| RPM | remedial project manager |
| S/cm ² | structures per centimeter squared |
| SAP | sampling and analysis plan |
| SOP | standard operating procedure |
| SP | sample point location identification number |
| SRC | Syracuse Research Corporation |
| TEM | transmission electron microscopy |
| USFS | U.S. Forest Service |
| USGS | U.S. Geological Survey |
| VCI | vermiculite containing insulation |
| Volpe Center | John A. Volpe National Transportation Systems Center |
| Zonolite | Universal Zonolite Insulation Company |
| °F | degrees Fahrenheit |

Section 1

Introduction

1.1 Project Understanding

Remedium Group, Inc. (Remedium), a subsidiary of W. R. Grace & Co., is providing environmental assistance to W. R. Grace & Co. as required to comply with the Administrative Order on Consent for Removal Action [Proceedings under Section 104, 106(a), 107, and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act as amended, 42 U.S.C. SS 9604, 9606(a), 9607, and 9622] at the Kootenai Development Company (KDC) Flyway Site (Flyway Site), which is part of the "Libby Asbestos Site." Remedium is managing the effort with the assistance of renewal contractor Mike Chapman Enterprises. Mike Chapman Enterprises will be the excavation and equipment contractor. Air sampling and analysis will be conducted by Koch Environmental Health, Inc. (KEH). The soil samples will be collected by KEH, and completed by RJ Lee Group, Inc.

The Libby Asbestos Project includes removal of asbestos contaminated soil at the Flyway site located immediately south of the former Screening Plant (Operable Unit 02). Remedium will be responsible for the remediation of the site.

It is important to note that this document contains portions of information, drawings, and figures provided by the USEPA. The drawings and figures have been modified to make them site-specific for this project.

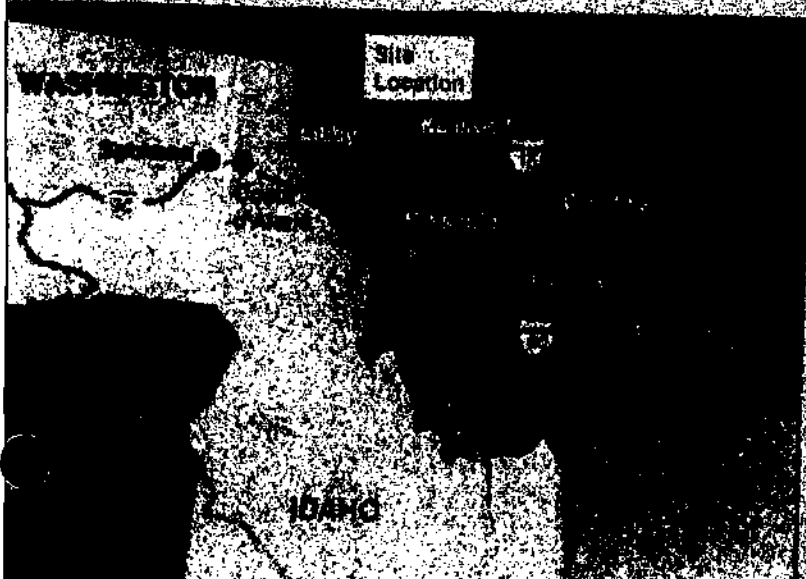
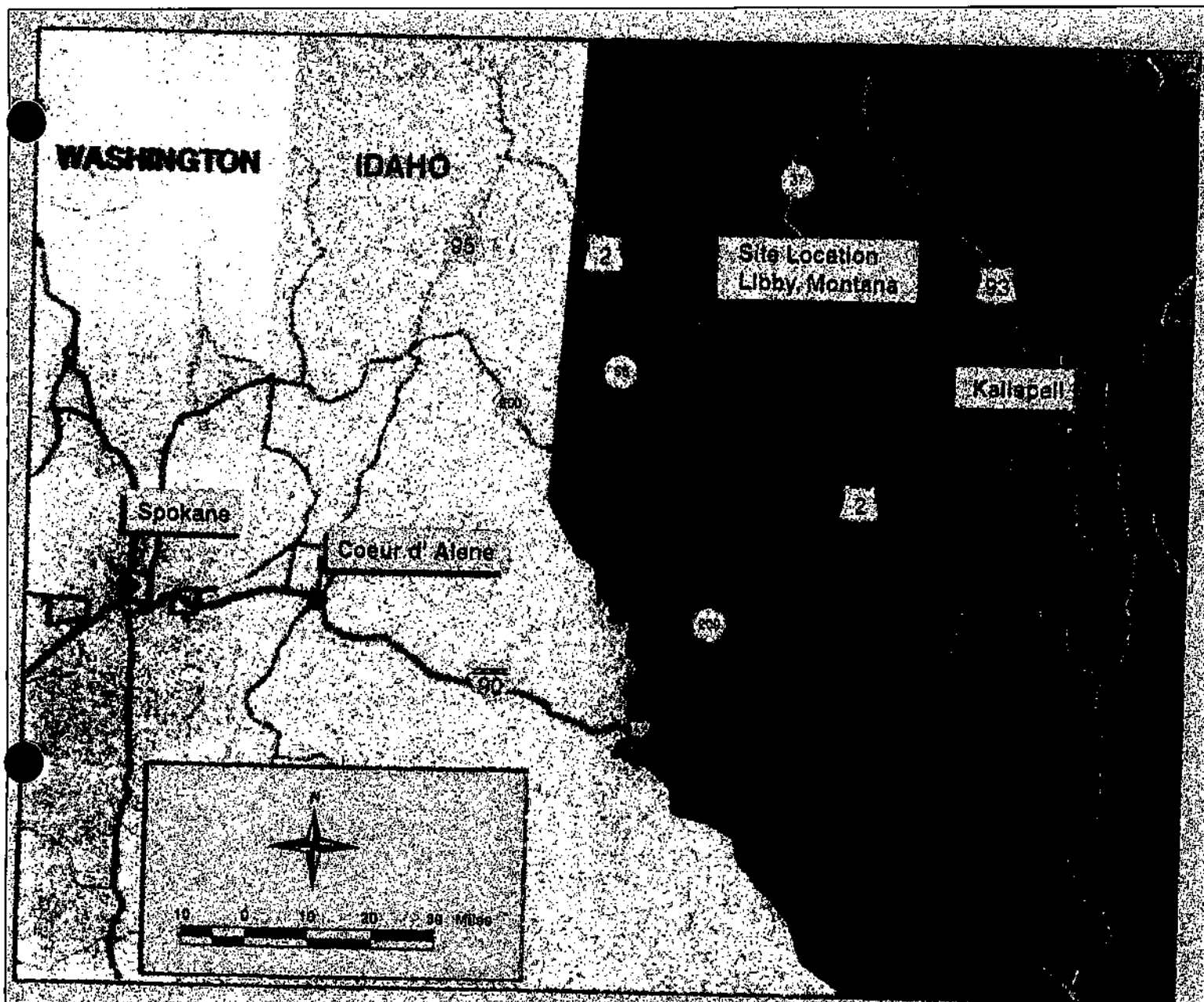
1.2 Background Information for the Flyway Site

Information included in this section was obtained during previous investigations at the Flyway site. Figure 1-1 provides the general locus plan of the Libby, Montana area. Figure 1-2 provides the location of the Flyway site in relation to the vermiculite mine site on the U.S. Geology Survey (USGS) quadrangle map.

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Remedium Group, Inc.
Figure 1-1
Site Locus Plan
Libby, Montana



Remedium Group, Inc.
Figure 1-2
Site Location Plan

1.2.1 Current Site Usage

This site is currently vacant, undeveloped land consisting of meadow, sparsely wooded areas and crushed stone and gravel roadways. An abandoned pump house is located on the property, close to the Kootenai River.

1.2.2 Historic Site Usage

The abandoned pump house on the property contains a pump used by the former owner, W. R. Grace & Co., to convey water from the Kootenai River to the mine site.

1.2.3 Site Area (Acreage)

Total site acreage includes the Flyway site occupied by the pump house and gravel and crushed stone roads. The Flyway site contains approximately 19 acres, located on the northeast side of the Kootenai River, approximately 4.5 miles northeast of Libby, Montana. Highway 37 runs along the northeast boundary of the site. The overall dimensions of the site are approximately 690 +/- feet on the north; 1,495 +/- feet on the east along Rte. 37; approximately 614 +/- feet on the south; and 1,910 +/- feet on the west along the Kootenai river.

1.2.4 General Site Condition

The Flyway property is accessed through a gated entrance off Highway 37. The east-northeast side of the property along Route 37 has been fenced by EPA. The property just north of the Flyway site has also been fenced by EPA. Access to the interior of the Flyway site is vehicular access gained at one of three gravel roads off Route 37 to a network of gravel cart paths. These gravel roads meander through the property and connect back to Route 37. Unimproved roads are in fair condition; however, vermiculite was visible at a number of locations on and adjacent to these roads. Road access to the site appears to be adequate to support future removal activities. Figure 1-3 is a reduced copy of the topography and general layout of this site.

1.2.5 Soil Conditions

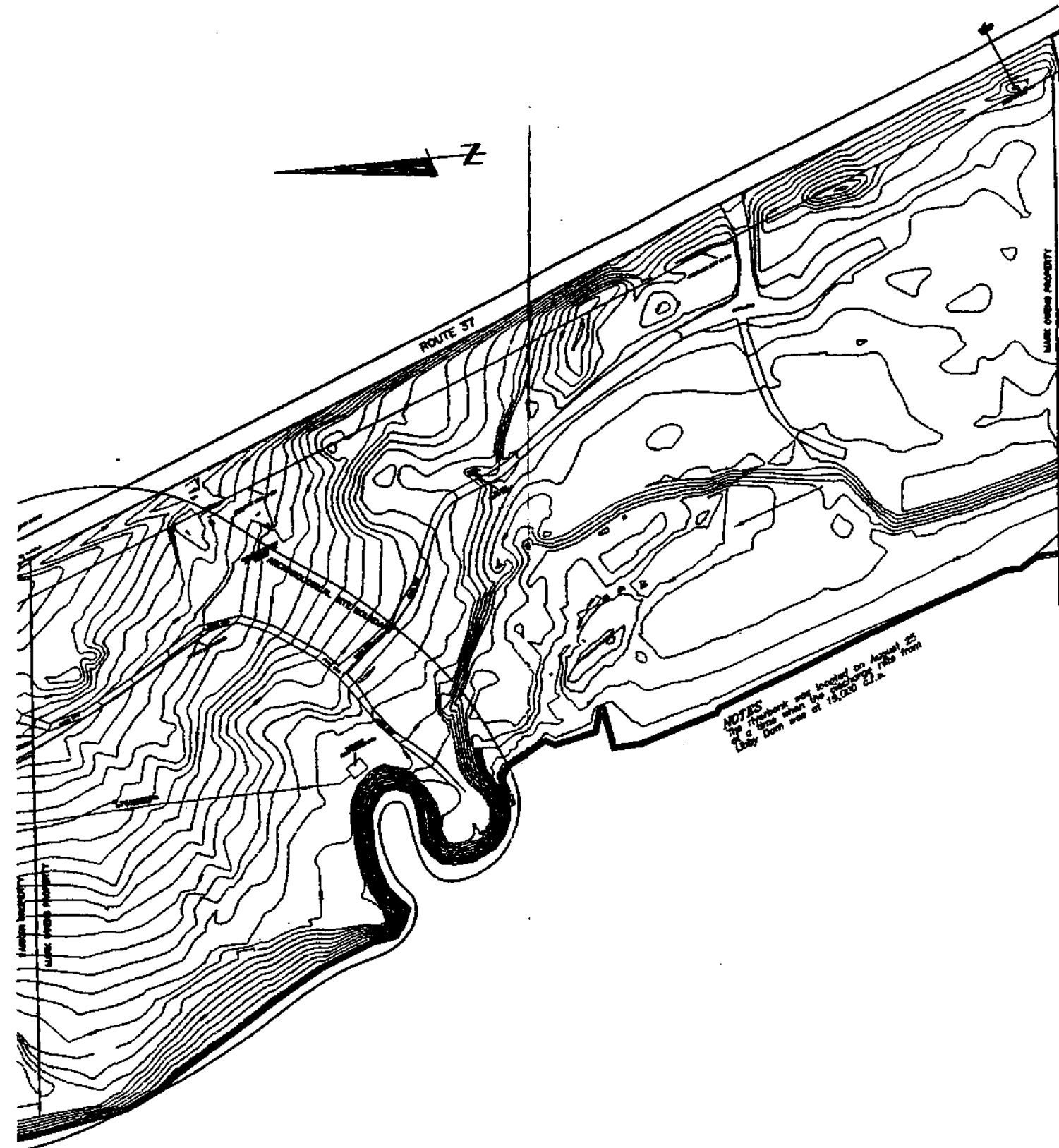
Soil conditions observed during preliminary investigations reveal that site soils consist of medium grained sand, cobbles (6-inch minus) and boulders. Topsoil at the site consists of sandy loam soil containing some silt and clay. Vermiculite was observed in some surface soils adjacent to and on the access roads.

1.2.6 Existing Infrastructure and Utilities

Telephone, water, and electrical power are not presently available at this site. There are gravel and stone access roads as shown on Figure 1-3. An electrical transformer was found outside of the pump house.

1.2.7 Availability of Water

An abandoned pump house is located on the property. Remedium understands that water from the Kootenai River was once pumped from this location to the mine site when it was in full operation. Water will be supplied to the site from tank trucks.



SURVEY DATA FROM J.R.S.SURVEYING INC.
 TOPOGRAPHIC SURVEY PLAN

PLAN VIEW: NOT TO SCALE

KOOTENAI DEVELOPMENT COMPANY
 FLYWAY PROPERTY
 LIBBY, MONTANA

General Site Layout

1.2.8 Existing Vegetation

Existing vegetation consists of grass, and small to medium growth trees of various types and ages.

1.2.9 Surrounding Properties

The property lies between Highway 37 on the east side and the Kootenai River on the west. The former Screening Plant (Operable Unit 02) is situated to the north of the Flyway site. Adjacent to the southern side of the Flyway site consists of occupied residential buildings.

1.2.10 Excavation Considerations

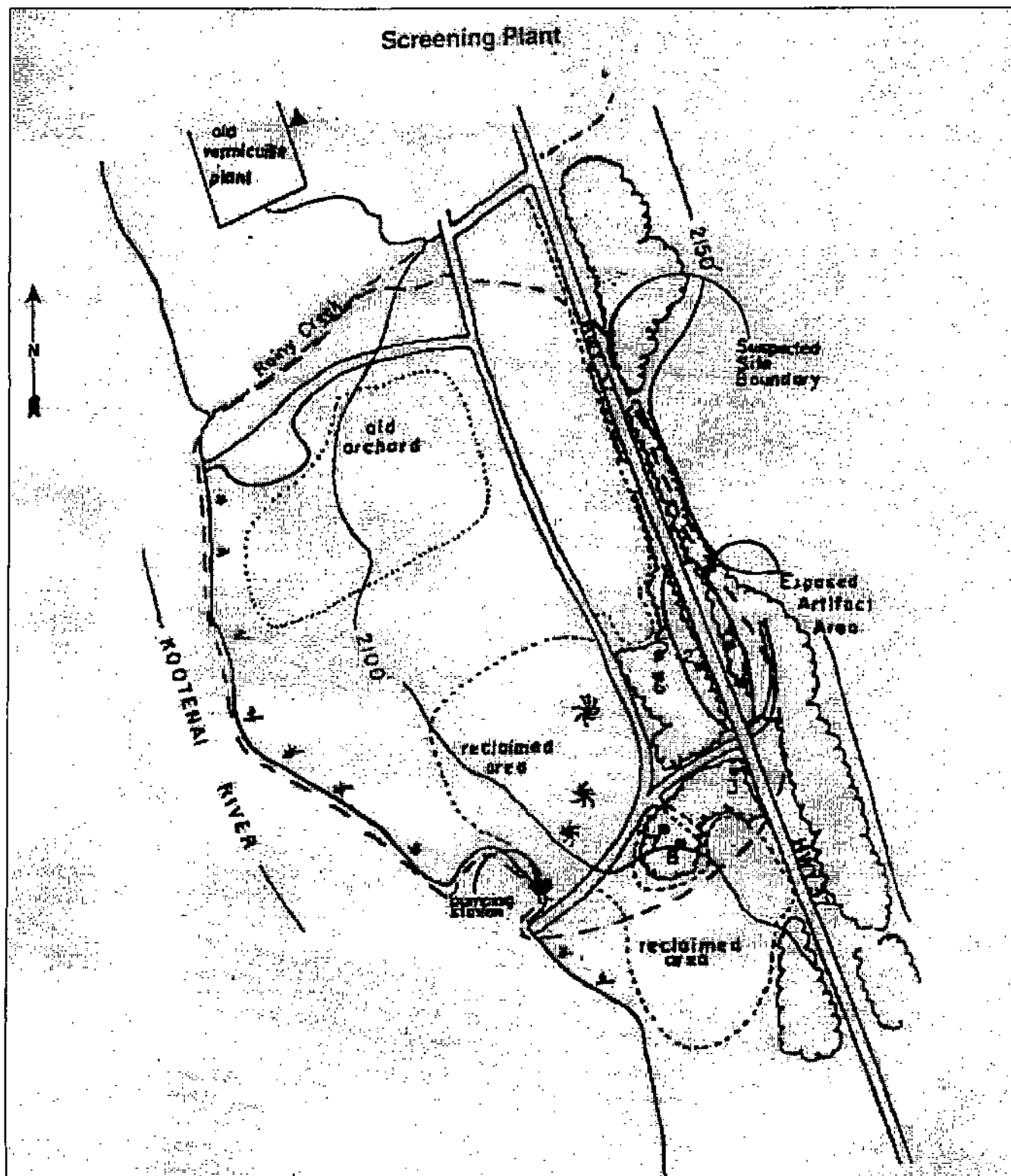
Excavation at the site should be conducted in a careful and cautious manner. The excavation and equipment contractor will be required to contact *Dig Safe* prior to initiating full-scale excavation activities beginning at the site. In addition, the following items will need to be considered when planning an excavation program at the site:

- Dust control
- Trucking access
- Site security
- Erosion control
- Underground utilities
- Site safety

See Section 3 for a summary of the work planned for 2003, which includes some narrative and references to Appendices for these items and more.

1.2.11 Cultural Resource Survey

Archaeological Site 24LN1045 was first determined to be eligible for the National Register of Historic Places by the Corps of Engineers (COE) on December 29, 1978. Tests on this site in 1978 and in 1993 through 1994 determined that it contained significant



Remedium Group, Inc.

Figure 1-4

Source: Montana Historical Society

1/6/94 Sketch Map for Archaeological Site

24LN1045

archaeological information. An archaeological survey was conducted on the property in 2000. Recovered artifacts are currently being held by the archaeologist. Figure 1-4 shows 1994 information from the Montana Historical Society files relative to the location of Archaeological Site 24LN1045 and an exposed artifact area. It is understood that this survey has been completed and there is no further action required on the part of W. R. Grace & Co.

Section 2

Summary of Work Completed in 2001

As an addendum to the Flyway Property Final Removal Action Work Plan, August 14, 2001, the following is a brief summary of work completed in 2001. Approximately thirteen (13) of the 41 grids were excavated during the 2001 construction season. Soil was excavated to a minimum depth of 18 inches below existing grade. In areas where visible product was encountered, contaminated soils were removed to depths of several feet until visible material was no longer present. Asbestos containing soils were disposed at the abandoned Libby mine site. Soil sampling conducted subsequent to issuing the 2001 Flyway RAWP indicates that approximately 28 grids require excavation for the 2003 construction season.

Trees equal to or greater than 6 inches in diameter at a point 4 feet above ground surface were protected from damage during soil excavation, backfilling, and restoration activities. Trees less than 6 inches in diameter at a point 4 feet above ground surface were cut into manageable size pieces and stockpiled by the removal contractor.

No field work was conducted in 2002.

★ Does this match with
2nd addendum?

Section 3

Summary of Work Planned for 2003

3.1 Planning Activities

3.1.1 Introduction

Where relevant, the Engineering Drawings and Technical Specifications developed in 2000 for the removal activities at the former screening plant (Operable Unit 02) will remain in effect for the 2003 construction season.

3.1.2 Health and Safety Plan Requirements

Koch Environmental Health, Inc. (KEH) prepared a draft comprehensive Site Specific Health and Safety Plan (HASP) for the site. The Health and Safety Plan will be followed for work efforts to be implemented in 2003. See Appendix A for a copy of the draft Site Specific Health and Safety Plan.

3.1.3 Air Monitoring Requirements

Air monitoring requirements outlined in the Quantity Assurance Project Plan (see Appendix B) and in the Sampling and Analysis Plan (see Appendix C) will be followed for air monitoring work efforts to be implemented in 2003.

3.1.4 Sampling and Analysis

A Sampling and Analysis Plan was developed by Remedium (see Appendix C). This plan will be followed for the activities to be conducted in 2003.

3.1.5 Decontamination and Dust Control

Personnel and construction equipment decontamination requirements will follow the procedures outlined in the Health and Safety Plan (see Appendix A) and the Dust Control Plan (see Appendix D).

3.1.6 Confirmatory Soil Sampling

Confirmatory Soil Sampling as outlined in the Sampling and Analysis Plan (see Appendix C) will be conducted in 2003.

3.1.7 Erosion Control

An Erosion Control Plan was developed by Remedium (see Appendix E). This plan will be followed for activities to be implemented in 2003.

3.1.8 Final Site Restoration

The Flyway site will be restored to a condition similar to what existed prior to soil removal activities. Restoration of the Flyway site includes placing river run gravel in the excavated areas (Riverrun material) to the approximate original contours.

The Riverbank if impacted will be restored using EPA designated rip-rap.

3.2 Removal Activities

3.2.1 Contractor Mobilization

Contractor mobilization, including decontamination and lavatory facilities shall be similar to those provided in the 2001 construction season. Mobilization shall begin upon notice to proceed by the USEPA project manager and work plan approval.

3.2.2 Temporary Facilities

Temporary facilities will include office trailers for project management, the site superintendent, and the field crew. Trailer will be equipped with the same requirements (telephone, heating, air conditioning, lighting, and ventilation systems) as described in the Flyway Property Final Removal Action Work Plan, August 14, 2001. Portable toilets, temporary water source and fencing shall be set up as outlined in the Flyway Property Final Removal Action Work Plan, August 14,

2001 and follow essentially the same procedures that were conducted in the 2001 construction season.

3.2.3 Decontamination Facilities

The removal contractor shall provide personnel decontamination facilities as outlined in the Flyway Property Final Removal Action Work Plan, August 14, 2001 and follow the same procedures that were conducted in the 2001 construction season. Also, see Appendix A for a copy of KEH's HASP.

Equipment decontamination facilities will also be required on the haul road to the mine site (see KEH's HASP, Appendix A, and the Dust Control Plan, Appendix D).

3.2.4 Tree Protection and Removal

Tree protection and removal will follow the same procedures that were conducted in the 2001 construction season and as outlined in the Flyway Property Final Removal Action Work Plan, August 14, 2001.

3.2.5 Soil Excavation and Disposal

→ Is this correct?

Twenty-eight (28) grids remain to be excavated in 2003. Figure 2-1 shows the approximate limits of soil excavation planned for the 2003 construction season. Soil in the identified locations will be excavated to a depth of 18 inches below existing grade. At the 18-inch depth, confirmatory soil samples will be collected and analyzed for asbestos by the PLM method. If asbestos is found at levels requiring removal (>1 percent), excavation and soil removal with confirmatory sampling will continue to a depth of 4 feet at 6" increments. Maximum soil excavation will be to 4 feet below existing grade.

Riverbank contaminated soil located along the Kootenai Riverbank will be excavated to a depth of 18". The impacted riverbank area will be backfilled with EPA approved rip-rap.

GPS coordinates of each sample point and corresponding analytical results will be entered into Remedium's project database. The excavated soil will be transported by truck to the abandoned mine site and disposed.

3.2.6 Confirmatory Soil Sampling

Confirmatory Soil Sampling as outlined in the Sampling and Analysis Plan (see Appendix C) will be conducted in the 2003 construction season, as required.

3.2.7 Transformer Removal and Disposal

The transformer located outside of the pump house will be removed and shipped for incineration/disposal in accordance with applicable regulations. Soil in the vicinity of the transformer will be sampled and analyzed for PCB contamination (see Appendix C, Sampling and Analysis Plan).

3.2.8 Transportation and Disposal Considerations

Transport and disposal of contaminated soil from the Flyway site will be conducted by truck to the Libby mine site. See Appendix D for the Dust Control Plan and Appendix F for the Traffic Control Plan.

3.2.9 Backfilling and Compaction

Backfill material shall meet the requirements outlined in the Flyway Property Final Removal Action Work Plan, August 14, 2001. The site will be graded to the approximate original contours. Existing clean stockpiled material will be used to grade the site.

3.2.10 Topsoil and Hydroseeding

In accordance with an agreement between EPA and Remedium, topsoil and hydroseeding will not be conducted at the Flyway site.

3.2.11 Final Site Restoration

Final restoration of the Flyway site will include erosion control, decontamination of the pump station building and its contents, sampling and proper disposal of the electric transformer, removing asbestos contaminated soil to the depths established by EPA, furnishing, place and compacting river run gravel (28-grid area) and rip-rap (along the impacted river bank area) granular fill for roadways and restoring the site to approximate original contours.

3.2.13 Document Control

Remedium developed a Document Control Plan (see Appendix G). The Document Control Plan will be used to control all documents produced during the Flyway site removal action.

Section 4

Remedium Management

The Remedium management team for the Flyway site project is comprised of the following: Project Coordinator (PC), Alternate PC, Project Manager, Excavation and Equipment Contractor, Sample Coordinator, Air Monitoring Manager, Quality Assurance Manager(s), and Project Quality Assurance Coordinator(s).

The following personnel are assigned to this project:

| | |
|--|---|
| Project Coordinator | Robert Marriam (Remedium Group, Inc.) |
| Alternate Project Coordinator | Robert J. Medler (Remedium Group, Inc.) |
| Project Manager | Alan Stringer (W. R. Grace & Co.) |
| Excavation and Equipment Contractor | Mike Chapman (Mike Chapman Enterprises, Inc.) |
| Sample Coordinator | Patrick McGurren (Koch Environmental Health, Inc.) |
| Air Monitoring Manager | Patrick McGurren (Koch Environmental Health, Inc.) |
| Quality Assurance Manager(s) | Robert Marriam Robert J. Medler |
| Project Quality Assurance Coordinator(s) | Robert Marriam Robert J. Medler |
| Health and Safety Officer | Thomas Koch (Koch Environmental Health, Inc.) |

CONTACT DIRECTIONS

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- Health and Safety Officer

Patrick McGurren,
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c/o W. R. Grace & Co.
317 Mineral Ave.
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Tel.: 1-406-293-3964

- Sample Coordinator
- Air Monitoring Manager

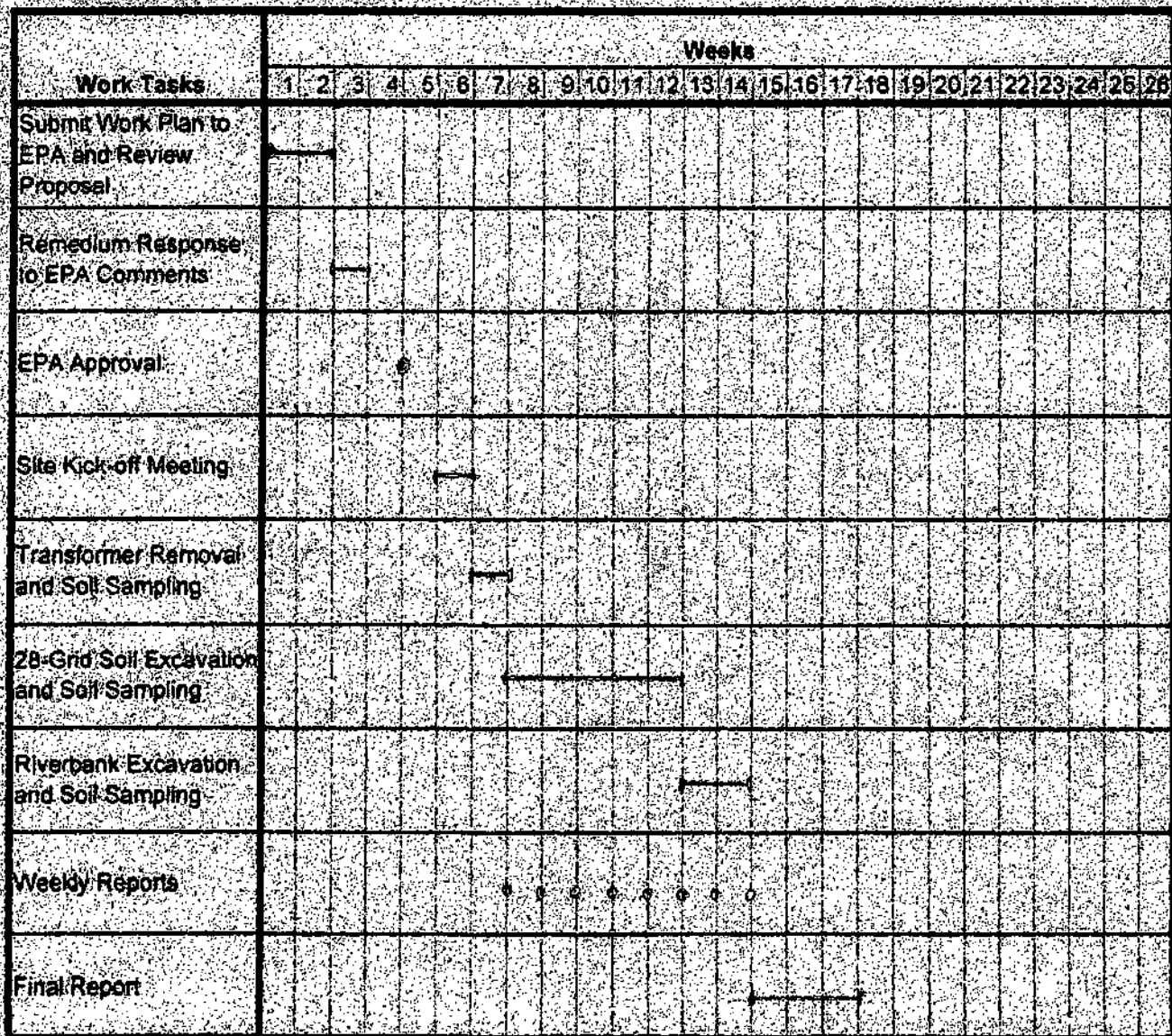
Section 5

Project Schedule

A schedule was developed that shows the proposed work efforts and the timeframe needed to complete these work efforts in 2003.

See Figure 5-1 for the project schedule.

Remediation Group, Inc.
 Figure 5-1
 Proposed Project Schedule - 2003
 Flyway Site
 Libby Montana



(#) - number of weeks

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APPENDIX A
HEALTH AND SAFETY PLAN

DRAFT

HEALTH AND SAFETY PLAN

SIGNATURE PAGE

Project Name: Removal of Impacted Soil
Location: Flyway Site, Libby, Montana
Project Number:
Client: Remedium Group, Inc.

REVIEWED AND APPROVED BY:

Signature: _____ Date Approved: _____
Project CIH,
Regional Health and Safety Manager

Signature: _____ Date Approved: _____
Project Manager

Table of Contents

| | | |
|-------|---|------|
| 1.0 | INTRODUCTION..... | A-1 |
| 1.1 | Site Description..... | A-2 |
| 1.2 | Planned Activities..... | A-2 |
| 2.0 | HEALTH AND SAFETY ORGANIZATION..... | A-4 |
| 2.1 | Remedium Management..... | A-4 |
| 2.2 | Health and Safety Officer..... | A-4 |
| 2.3 | Site Safety Coordinator..... | A-5 |
| 2.4 | Personnel..... | A-6 |
| 2.5 | Subcontractor and Vendor Personnel..... | A-7 |
| 3.0 | TRAINING AND MEDICAL SURVEILLANCE REQUIREMENTS..... | A-8 |
| 4.0 | HAZARD ASSESSMENT..... | A-10 |
| 4.1 | Chemical Hazards..... | A-10 |
| 4.2 | Biological Hazards..... | A-13 |
| 4.3 | Physical Hazards..... | A-16 |
| 5.0 | PERSONAL PROTECTIVE EQUIPMENT AND CONTROLS..... | A-18 |
| 5.1 | Engineering/Administrative Control Measures..... | A-18 |
| 5.2 | Dust Control..... | A-21 |
| 5.3 | Personal Protective Equipment..... | A-21 |
| 6.0 | AIR MONITORING..... | A-25 |
| 6.1 | Background Air Samples..... | A-25 |
| 6.2 | Daily Air Monitoring..... | A-25 |
| 6.3 | Final Air Monitoring..... | A-25 |
| 6.4 | Air Monitoring Summary..... | A-26 |
| 7.0 | SITE CONTROL..... | A-27 |
| 7.1 | Work Site Access and Security..... | A-27 |
| 7.2 | Work Zones..... | A-28 |
| 7.3 | Buddy System..... | A-28 |
| 7.4 | Site Communications Plan..... | A-29 |
| 8.0 | DECONTAMINATION..... | A-30 |
| 8.1 | Personnel Decontamination..... | A-30 |
| 8.2 | Equipment Decontamination..... | A-31 |
| 8.3 | Disposition of Project-Derived Wastes..... | A-32 |
| 9.0 | EMERGENCY RESPONSE PROCEDURES..... | A-33 |
| 9.1 | Introduction..... | A-33 |
| 9.2 | Pre-Emergency Planning..... | A-34 |
| 9.3 | Emergency Recognition..... | A-34 |
| 9.3.1 | Recognition..... | A-34 |
| 9.3.2 | Prevention..... | A-35 |

Table of Contents (cont.)

| | | |
|------|---|------|
| 9.4 | Safe Distances and Places of Refuge..... | A-35 |
| 9.5 | Evacuation Routes and Procedures..... | A-35 |
| 9.6 | Decontamination Procedures/Emergency Medical Treatment..... | A-36 |
| 9.7 | Emergency Alerting and Response Procedures..... | A-36 |
| 9.8 | Spills, Accidental Releases..... | A-36 |
| | 9.8.1 Response Procedures..... | A-36 |
| | 9.8.2 Spill Prevention Measures..... | A-37 |
| 9.9 | Fires..... | A-38 |
| 9.10 | Work Site Injury or Illness..... | A-39 |
| 9.11 | PPE and Emergency Equipment..... | A-40 |
| 9.12 | Emergency Contacts..... | A-41 |
| 9.13 | Recordkeeping..... | A-41 |
| 10.0 | HASP APPROVAL, REVIEW AND DOCUMENTATION..... | A-43 |
| 11.0 | REFERENCES..... | A-44 |

List of Tables

| | | |
|-----------|---|------|
| Table A-1 | Flyway Health and Safety Training Requirements..... | A-9 |
| Table A-2 | Potential Chemical Hazards..... | A-11 |
| Table A-3 | Permissible Inhalation Exposure Levels..... | A-12 |
| Table A-4 | General Safety Rules..... | A-20 |
| Table A-5 | Task-Specific PPE Requirements..... | A-23 |
| Table A-6 | Air Monitoring Reference Table..... | A-30 |
| Table A-7 | Emergency Telephone Numbers..... | A-42 |

Attachments

| | |
|--------------|--|
| Attachment A | Task Hazard Analysis |
| Attachment B | Air Monitoring/Industrial Hygiene Project Plan |

1.0 Introduction

The health and safety (H&S) requirements for the Remedium Group, Inc. (Remedium) and subcontractor personnel engaged in the activities associated with the removal of impacted soil at the Flyway site located northeast of Libby, Montana, are defined in this Health and Safety Plan (HASP). This HASP addresses general site H&S requirements and, specifically, removal of compacted soils; soil sampling preparation of a disposal location at the mine; transportation and disposal of materials; and property restoration. Remedium will maintain a copy of the HASP on site.

The HASP identifies the potential hazards present at the Flyway site and the protocols, equipment, and control measures to be implemented in order to protect workers from exposure to these hazards. Background information on the Flyway site and the work tasks associated with this project are described in the Removal Action Work Plan (RAWP) for the project. This HASP describes the key H&S organization and personnel responsible for implementing the HASP; their qualifications and responsibilities; training and medical surveillance requirements for H&S and field personnel, including copies of certificates and other training and medical surveillance documentation for Remedium and subcontractor personnel assigned to the Flyway project; types and levels of personal protective equipment (PPE), control measures required during normal conditions, and contingency PPE and controls to be used for more extreme conditions; site and personal monitoring requirements; site control and security measures; decontamination protocols; reports and record keeping; and emergency response procedures.

The HASP was prepared in accordance with H&S standards, provisions, and requirements specified in the following regulations and guidance documents:

- U.S. Environmental Protection Agency (EPA) Standard Operating Safety Guides. (EPA 1988);
- Title 29 *Code of Federal Regulations* (CFR) Section 1910 (29 CFR 1910), Occupational Safety and Health Administration (OSHA) General Industry Standards;
- 29 CFR 1926, OSHA Safety and Health Regulations for Construction;

- 29 CFR 1910.120 OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER).
- Army Corps of Engineers' Safety and Health Requirements Manual (COE 1996);
- National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards (NIOSH 1997);
- NIOSH, OSHA, U.S. Coast Guard (USCG), EPA. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH 1985);
- American Conference of Governmental Industrial Hygienists (ACGIH) 1999 TLVs® and BEIs®, Threshold Limit Values for Chemical Substances and Physical Agents; Biological Exposure Indices (ACGIH 1999);
- American National Standards Institute (ANSI). Standards for emergency eye wash/showers (ANSI Z358.1-1998), safety glasses (ANSI Z87.1-1989), hard hats (ANSI Z89.1-1997, Type I, Class E), hearing protection (ANSI S3.9-1974); Tyvek® coveralls (ANSI/ISEA 101-1996, sizing requirements), safety boots (ANSI Z41 PT 91 M/F I/75 C/75).

1.1 Site Description

See the project RAWP.

1.2 Planned Activities

The HASP identifies the procedures, and/or policies designed to address H&S for the following work activities at the Flyway site:

- Preparation of site property;
- Excavation of impacted soil;
- Preparation of disposal location at the mine;
- Transportation and disposal of waste; and
- Property restoration.

The following individual tasks to complete the removal action activities, described in detail in the project Work Plan, are addressed in **Attachment A**, Task Hazard Analysis of this HASP:

- Mobilization;
- Site preparation;
- Furnish/install and maintain temporary storage areas and buildings;
- Mine site disposal location preparation;
- Transportation to and disposal at mine site;
- Surface excavation;
- Backfill and compaction (site restoration); and
- Demobilization.

2.0 HEALTH AND SAFETY ORGANIZATION

As with all aspects of fundamental business operations, implementing and enforcing H&S requirements is a team effort on the part of Remedium and subcontractor personnel. However, because of the complex and dynamic nature of worker safety policy, a team of individuals devoted specifically to H&S is required to aid Remedium management in administering an effective and efficient program. The following describes the Remedium H&S organizational structure and summarizes the primary areas of responsibility.

2.1 Remedium Management

Remedium management is committed to a safe and healthful work environment. Remedium believes that health and safety is a line responsibility of project management and employees. To that end, management will work toward ensuring that all project management and employees comply with H&S requirements and will institute corrective actions whenever the need for such actions becomes apparent. With advice from Koch Environmental Health, Inc., Remedium management will initiate immediate modifications or corrective actions directly through the Project Manager (PM).

2.2 Health and Safety Officer

The H&S Director, Tom Koch, CIH, is responsible for developing and administering the H&S programs on this site. His duties will include:

- Establishing requirements and criteria for H&S equipment; and
- Briefing management on H&S concerns and corrective actions.
- Develop and approve this HASP;
- Review H&S qualifications of Remedium and subcontractor personnel assigned to perform fieldwork at the Flyway site.
- Participate in the project kick-off meeting and initial site safety meeting.
- Conduct periodic evaluations of the Flyway work site for compliance with policies and procedures specified in this HASP;

- Review project logs, inspection, and air monitoring reports;
- Direct liaison activities among Remedium, OSHA, and other federal, state, and local government agency personnel responsible for H&S issues; and
- Assist management in the investigation of injuries, illnesses, and significant incidents that occur at the Flyway site and provide Remedium management with reports of findings.

2.3 Site Safety Coordinator

Mr. Patrick McGurren has been assigned as the Site Health and Safety Coordinator (SHSC). He will coordinate and monitor site-specific H&S concerns at the site. The SHSO will be on site during all work activities at the Flyway site. Only employees who satisfy the training and medical surveillance requirements specified in this HASP and have a comprehensive understanding of project activities are allowed to serve as a SHSC. The SHSC, in addition to other project-related duties, will have the following primary H&S responsibilities:

- Ensure field activities are conducted in accordance with the provisions and requirements of the HASP;
- Verify that personnel are medically qualified, trained, and have reviewed and are prepared to implement the procedures defined in the HASP;
- Conduct and document initial site-specific training for all site personnel entering designated or contaminated work zones of the Flyway site. The training will cover the use of safety, health, respiratory, and protective equipment, as well as the safety and security procedures to be implemented at the work site;
- Conduct and document follow-up site-specific training for new personnel or visitors, subcontractor personnel entering designed or contaminated Flyway work zones;
- Conduct daily site safety briefings covering specific H&S items for the work to be performed that day;
- Prepare, sign, and maintain training logs on site. The logs are to document personnel in attendance, the date/time of training sessions, topics covered, equipment demonstrated and used by personnel, prohibitions, and other pertinent information;

- Complete daily safety inspection and logs and complete the seven day progress report that will include significant safety and health incidents, air monitoring results, and safety and health issues related to upcoming work;
- Observe PPE use for compliance with the HASP;
- Ensure monitoring of personal exposure in the work area, area monitoring, calibration of instruments, and weekly reporting of air monitoring results;
- Control work site access, establish and maintain (when necessary) work zone boundaries and access points;
- Assess daily decontamination procedures for compliance with the HASP and the Building Cleanup/Decontamination Plan;
- Ensure work sites are clean and free from debris and wastes;
- Ensure hazardous materials and fuels are safely handled, stored, and disposed of and that Material Safety Data Sheets (MSDSs) are on file for all chemicals used on site and that chemical containers are properly labeled per OSHA hazard communication requirements;
- Develop and establish emergency procedures, ensure appropriate emergency response personnel are notified in the case of a imminent health risk or other emergency, and coordinate/assist response personnel as necessary;
- Immediately report verbally any deviations from the HASP, near-misses, injuries, illnesses, and significant incidents that occur at the Flyway site to the PM and Project CIH;
- Assist in the investigation of all accidents, injuries, illnesses, and incidents occurring on site; and
- Order shutdown of field activities on determination of an imminent H&S hazard and advise Remedium and subcontractor personnel of the hazard.

As a routine is established for the Flyway site remediation work, many of these responsibilities may be reassigned to other personnel.

2.4 Personnel

Each Remedium employee or contractor must do his/her part to reduce potential hazards in the work environment. All personnel are responsible for taking all reasonable precautions to prevent injury to themselves, fellow workers, subcontractor personnel, site visitors, and the public. On-site workers are required to review and adhere to the provisions

of this HASP and to report all accidents and any unsafe conditions to the SHSC.

Specifically, employees are required to:

- Evaluate the hazards associated with their work assignment;
- Comply with all H&S requirements applicable to their work assignments;
- Report to the Plant Manager all unsafe conditions; work-related injuries, or illnesses;
- Participate in training, medical surveillance, and workplace monitoring programs applicable to their work assignments.

NOTE: Any individual observing an operation that presents a clear and imminent danger to the environment or to the health and safety of site personnel, subcontractors, visitors, or the public has the authority to initiate a stop-work action and then notify their supervisor.

2.5 Subcontractor and Vendor Personnel

Implementation of the policies and procedures of the HASP is intended to reduce the potential for injury and illness with respect to Remedium employees. Subcontractors will also benefit. Subcontractors are expected to comply with the requirements of the HASP as well as their own H&S procedures. However, neither Remedium management nor employees can protect subcontractors as well as those parties can protect themselves. If a subcontractor's unsafe practices are observed, the Plant Manager is to be immediately informed so that subcontractor supervisory personnel can be advised. Subcontractors will be held financially responsible for any shutdown or delays caused by their employees' unsafe work practices.

3.0 TRAINING AND MEDICAL SURVEILLANCE REQUIREMENTS

Field personnel working within a hazardous waste site designed work zone [e.g., Exclusion Zone (EZ) or Contamination Reduction Zone (CRZ)] during soil excavation, soil sampling and transportation and disposal at the mine site must have successfully completed classroom and field training for hazardous waste site operations, in accordance with OSHA HAZWOPER requirements [29 CFR 1910.120(e)]. Pre-assignment training requirements for the Flyway site include successful completion of 40-hour initial H&S training, 3-day site-supervised fieldwork, and annual 8-hour H&S refresher. In addition, the SHSC will have 8-hour HAZWOPER Supervisor training. At least two field team members will have a current valid certification in standard first aid and cardiopulmonary resuscitation (CPR).

Heavy equipment operators will be qualified on the basis of training and experience as determined by the SHSC. Haul truck operators will have current commercial drivers' licenses (CDLs).

Remediation field personnel are required to participate in a Medical Surveillance Program, in accordance with the requirements specified by OSHA [29 CFR 1910.120(f)] for cleanup operations at uncontrolled hazardous waste sites. All field personnel potentially exposed to hazardous substances/health hazards, such as those in designated work zones, must have completed either a baseline or an annual medical surveillance physical examination and must have been found to be medically fit and qualified to wear respiratory protective equipment prior to their assignment to the Flyway site.

Initial site-specific H&S training is to be conducted by the Health & Safety Officer and other designated and qualified individuals prior to initiating on-site activities. The training will include instruction in the use of safety equipment and PPE, hazards known or potentially present at the work site, each individual's assigned work tasks and responsibilities, monitoring activities, safety and security procedures, review of the HASP, and other safety

requirements unique to the work site. Subsequent to the initial safety trainings, follow-up training sessions will be conducted for new personnel or visitors. Additional follow-up training will also be conducted whenever significant changes in work tasks or work-site conditions may affect worker safety.

Daily "tailgate" safety briefings will be conducted by the Plant Manager, Excavation and Construction Contractor, or another qualified designee prior to each day's work activities. The tailgate will address H&S issues specific to the work for the day. All training will be appropriately documented by the Plant Manager, including time/dates of the training, topics covered, and signature of individuals attending the training.

Training and medical surveillance requirements for project personnel working at different levels of participation are summarized in **Table A-1**.

Table A-1, Flyway Health and Safety Training Requirements

| Requirement | | | Employee Participation Level |
|-------------|------|--|------------------------------|
| Medical | i. | Baseline Medical Examination (29CFR1910.120(f)) | X |
| | ii. | Annual Medical Examination (29CFR1910.120(f)) | X |
| | iii. | Asbestos Medical Examination | X |
| Training | i. | 40-hour Initial Health & Safety Training | X |
| | ii. | Qualified for Respirator Use (includes fit test) | X |
| | iii. | Site-Specific Training | X |
| | iv. | Annual 8-hour Refresher Training | X |
| | v. | First Aid* | X |
| | vi. | Annual CPR* | X |

Notes:

- X Indicates training requirement
- At least two persons at the site will have current valid certification to administer first aid and CPR

4.0 HAZARD ASSESSMENT

This section of the HASP provides an assessment of the specific chemical, biological, and assorted physical and construction-related safety hazards anticipated during the work tasks identified in Subsection 1.2. The Task Hazard Analysis in **Attachment A** provides a summary of the work tasks, potential hazard(s) associated with the tasks, and the control measures that will be implemented. Relevant SMSs are referenced.

4.1 Chemical Hazards

This section identifies the hazardous substances of concern that may pose a potential exposure risk to field personnel. The substances include asbestos and total particulates. The principal route of exposure to these substances is inhalation, and to a much lesser degree, ingestion of asbestos fibers. **Table A-2** summarizes the general toxicological information (e.g., potential target organs, health effects, medical monitoring in case of exposure) for these substances. **Table A-3** identifies OSHA-enforceable worker exposure standards, or Permissible Exposure Limits (PELs). Exposure to any of these chemicals in excess of the PELs is prohibited without appropriate respiratory protection.

Table A-2, Potential Chemical Hazards

| Chemical Class/Compounds | Uses | Target Organs | Potential Effects | Medical Monitoring |
|--------------------------|--|----------------------------|---|--|
| Asbestos | Thermal system insulation; spray-on insulation; transite panels and material; mastic; brake linings; found in vermiculite ore at Libby, Montana mine site. | Lungs Eyes | Dyspnea; restricted pulmonary function Asbestosis; mesothelioma ^(a) Eye irritation | Occupational/general medical history emphasizing prior exposure to asbestos. Medical examination with focus on lung. Chest x-ray. Pulmonary function test. |
| Total Particulate | Naturally occurring; associated with soil disturbance. | Eyes Respiratory System | Eye irritation; upper respiratory system irritation; accumulation in lungs. | |

^(a) Long-term effects generally manifest in 10 to 30 years.

Table A-3, Permissible Inhalation Exposure Levels

| Contaminant | OSHA - PEL/STEL | ACGIH - TLV/STEL | NIOSH REL | IDLH |
|-------------------|---|--|-----------|------|
| Asbestos | .1 f/cc/ 1 f/cc (30 min.) | .1 f/cc A1 | .1 f/cc | Ca |
| Total Particulate | 15mg/m ³ total 5 mg/m ³ respirable | 10 mg/m ³ total 3 mg/m ³ respirable | NE | NE |

Notes:

- A1 = Confirmed human carcinogen
- ACGIH = American Conference of Governmental Industrial Hygienists
- Ca = "Ca" designation indicates that NIOSH recommends substance be treated as a potential human carcinogen and exposures reduced to lowest feasible concentration. Non-enforceable standard.
- f/cc = Fibers per cc
- IDLH = National Institute for Occupational Safety and Health (NIOSH) "Immediately dangerous to life or health." The exposure concentration represents a condition that poses a threat that is "...likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment."
- NE = No level value established.
- PEL = Permissible Exposure Limit (29 CFR 1910.1000). Occupational Safety and Health Administration's PELs, expressed as an 8-hour time-weighted average (TWA) concentration.
- (OSHA) = Short-term exposure limit. OSHA and Cal/OSHA 15-minute TWA concentration that should not be exceeded unless otherwise noted.
- STEL = Threshold Limit Value®. American Conference of Governmental Industrial Hygienists' TLVs are non-enforceable guidelines based on an 8-hour TWA. "A1" designation indicates substance recognized by ACGIH as a confirmed human carcinogen; "A2" designation indicates substance is a suspected human carcinogen; "A3" designates carcinogenicity in experimental animals; "A4" designates inadequate evidence to classify substance as carcinogenic in humans or animals; "A5" designates non-carcinogenic in humans based on epidemiologic studies.
- TLV =

Sources: NIOSH 1997; ACGIH 1998; 29 CFR 1910.1000 et seq.

Personnel may also be exposed to fuels for diesel- or gasoline-powered heavy equipment used at Flyway work site to excavate, scrape, compact, haul materials, etc., and water (possibly contain magnesium chloride) used for dust suppression. MSDSs will be maintained and available at the Flyway field trailer for all hazardous materials that are used or stored at the work site. All chemical containers will be labeled according to OSHA hazard communication requirements.

4.2 Biological Hazards

Biological hazards that may be encountered at Libby work sites consist primarily of insects, spiders, and snakes. Individuals with allergies to insects (e.g., bee or wasp stings) should remember to note this fact on the Medical Data Sheet (MDS) they are required to complete, or to remind the SHSO prior to the start of field activities. A first aid kit will be available at the work site to treat minor skin irritations, stings, and bites.

Although most spiders are harmless, there are two species that pose potential hazards: the Brown Recluse or violin spider (*Los osceles reclusa*) and the Black Widow (*Latrodectus mactans*). Field personnel are reminded to exercise extreme caution when lifting sumps or other covers and when working in dark, dank, enclosed, or heavily covered areas, since spiders are typically found in such microenvironments. Spider bites, although rarely fatal, are often quite painful. Symptoms may include severe pain in the area of the bite, profuse sweating, nausea, abdominal cramps, and difficulty breathing and speaking. First aid procedures for minor insect bites and stings include cold applications; use of soothing lotions (e.g., calamine); and for a bee sting, removal of the venom, stinger, and venom sac. If the bite or sting is suspected to be from a brown recluse or black widow or it produces a severe reaction, implement the following procedures: 1) calm the victim and keep him/her from moving about, preferably in a prone position; 2) remove the venom with a

Sawyer extractor (which should be maintained in the first aid kit); 3) immobilize the bitten extremity and keep it below the heart; 4) if necessary, provide artificial respiration or CPR; 5) and get the victim to a hospital immediately.

Ticks are common in wooded areas and may carry transmittable diseases. The most common are Rocky Mountain spotted fever, transmitted by the wood tick, and Lyme disease, carried by the deer tick. Recommendations for avoiding tick bites are to wear clothing to cover the skin and walk in open areas rather than through brush. At the end of the day, check your body for ticks, especially in areas where their movement might be restricted such as the ankles, shins, and waist. If a tick is attached to the skin, gently pull it out with tweezers, being careful not to squeeze the tick's body. Clean the bitten area with antiseptic and watch for any rash. If possible, save the tick in a bottle for later identification.

Poisonous snake are found in most states. Snakes will usually be found on slopes and rocks exposed to sunlight. When in "snake country," look before you step, step on top of rocks and logs, and look for snakes before stepping over these obstacles. In areas where poisonous snakes may be present, a snakebite kit should be included in the first aid kit. Personnel should remember that snake bits are preventable events. Most individuals who are bitten see the snake but then take actions that put them at risk. Give snake a wide berth – move away, and the snake will not chase you. Always look before you step over an object, before you turn over a rock or log, and before you place your hand in a crevice. Complete outdoor tasks during daylight hours. Personnel should always wear protective clothing (heavy leather work gloves, thick leather safety boots, long-sleeved shirts) when working in areas with tall grass or in a potential snake habitat.

Snakebites are serious and should be treated as though from a venomous snake, such as a rattlesnake (triangular head; thick body; pits between the eyes and nostrils; generally 4 to 6 feet long; blotched brownish, gray, or red coloration; characteristic rattles). Seek medical attention immediately. Symptoms of venomous poisoning include swelling,

pain, and tingling at the bite site; tingling and a metallic taste in the mouth; fever, chills, blurred vision, and muscle tremors. Even if the bite is not from a venomous snake, there is a real possibility of tetanus. The following first aid steps should be followed while awaiting emergency medical services.

- Calm the victim and keep hydrated and comfortable,
- Immobilize the affected area and keep at or below the level of heart,
- Remove rings, watches, and other constrictive items before swelling starts, and
- Gently clean the wound with an antiseptic soap and apply sterile dressing; do not apply ice or attempt to cut the bite site or suck out the venom.

The goal of the treatment should be safe and rapid transport to the emergency room without undue anxiety or activity that may accelerate absorption of the venom. A short walk is acceptable if the patient feels up to it and if no alternative is available. A suction device, such as a Sawyer Extractor, can be used to effectively remove up to 30% of the venom if applied within three minutes of the bite. An extractor, which is applied without incision, should be maintained in the first aid kit and used only when there may be a delay in securing emergency medical treatment.

Other animal hazards that could be encountered include wild and domestic animals, primarily dogs. Most wild animals will be frightened away at sight, but the more domestic they are, the less likely they are to run. Consequently, domestic dogs probably represent the greatest threat. However, beware of skunks and porcupines that do not flee or that raise their tails vertically; you could become a target for noxious excretions or quills. The following guidelines are recommended to avoid animal attacks in the field:

- Avoid surprising animals by making noise and make a wide detour around any animals acting abnormally;
- If dogs are present and pose a potential threat, return to the field trailer and notify the SHSO;
- Carry a walking stick to fend off attacks from domestic dogs; and

- Avoid contact with rodents, because they frequently are hosts for Hantavirus and fleas, which carry typhus and the plague. Avoid direct contact or inhalation of dust associated with rodent feces. Cleanup will be conducted using a respirator with high-efficiency particulate air (HEPA) cartridges, gloves, and a Clorox® solution to wet down nesting material that might contain rodent feces or urine. Dispose of fecal material, nesting material, or dead rodents in a sealed bag.

One of the most prevalent hazards to field personnel is sensitivity to poison oak, poison ivy, or poison sumac (members of the *Rhus* species). These plants are common throughout the U.S. Sensitive individuals should avoid contact and if contact is suspected, promptly wash with soap and water. Wear long sleeves and gloves to help avoid contact. Sensitivity varies considerably, but exposure can result in a debilitating rash if not treated and/or allowed to spread. Exposure to the irritating and sensitizing agent, urushiol, is also possible from the smoke of burning *Rhus* plants. In addition, many plant leaves, bark, berries, or flowers are toxic if ingested.

As indicated in **Table A-2**, exposure to chemical hazards will be controlled via the implementation of appropriate administrative and engineering controls (daily safety training, good work practices, general safety rules, dust suppression, cover material), immediately available emergency equipment (first aid, emergency eye wash, fire extinguisher, etc.), and the use of appropriate chemical resistant clothing and respirators when Action Levels are exceeded. Exposure to contaminants is expected to be limited to intrusive activities when the underlying contaminants could be exposed or contact. The SHSO will brief all personnel assigned to the work site of the potential hazards. Perimeter air monitoring of the work site and breathing zone of potentially exposed workers will be conducted throughout the work shift when intrusive activities are underway.

4.3 Physical Hazards

The Task Hazard Analyses in **Attachment A** identify the physical hazards of concern that pose a potential risk to field personnel. The hazards include vehicle traffic, noise, electrical, hand and power tools, fire/explosion, hot work, above and below ground utilities,

heavy equipment operation, material handling, extreme weather conditions (heat stress, lightning, high winds, tornadoes), muscle strains, and slip/trip/fall hazards. Exposure to physical hazards will be controlled through the implementation of appropriate administrative and engineering controls (daily safety training, good work practices, general safety rules, traffic and site control), immediately available emergency equipment, and the use of appropriate PPE.

5.0 PERSONAL PROTECTIVE EQUIPMENT AND CONTROLS

The following subsections identify the appropriate engineering and administrative control measures and PPE for the Flyway work sites. The PPE and control measures are designed to limit the risk of exposure to known or potential hazards at the work site. Significant variations or modifications to these requirements, or additional PPE/controls required to meet additional or unexpected site- and task-specific hazards, will require revisions and/or addenda to this HASP, approved by Project CIH.

5.1 Engineering/Administrative Control Measure

Field personnel will be reminded during the initial site-specific training, subsequent follow-up training, and daily safety briefings to be aware of potential chemical and physical hazards and to implement the hazard controls specified in the Task Hazard Analyses (**Attachment A**). Field personnel will immediately inform the Project Manager, or other supervisory personnel of any unsafe conditions or new hazards they may encounter. The Plant Manager is responsible for ensuring that site control measures (e.g., marking, warning signs, placards, erecting barriers, securing and controlling access) and decontamination procedures are implemented.

All hazardous materials and fuels will be stored in appropriately marked/labeled containers, in accordance with the manufacturer's recommendations, and, as approved by the SHSO, stored in secured areas of the work site or the fire locker. All containers will be regularly checked for leaks, and must be clearly labeled, tagged, marked [e.g., signs, labels, Department of Transportation (DOT) placards, etc.] indicating the name/type of hazardous chemical(s) and the H&S hazards. All MSDSs for hazardous materials used on site will be available at the Remedium field trailer.

Outdoor field activities will be scheduled for daytime hours. Activities within work areas required a minimum intensity of 30 footcandles. Areas outside of immediate work

areas (exit ways, walkways, etc.) may require substantially less illumination, normally about 10 footcandles.

General safety rules, as presented in **Table A-4**, will be in effect at the Flyway work site. These rules are designed to minimize potential exposure to work site hazards.

Table A-4 General Safety Rules

- Personnel and authorized visitors at Flyway work site will be required to sign in at the on-site trailer. Visitor access within the work site will be limited to areas outside of designated work zones, or Exclusion Zone and Contamination Reduction Zone. Personnel authorized to work in or enter the EZ or CRZ will be required to meet training/medical surveillance requirements, review and fully understand the HASP, and agree (in writing) to comply with its requirements.
- Eating, drinking, chewing gum or tobacco, and smoking are prohibited except in designated work site areas.
- PPE will be used at the work site at the protective level specified in the HASP or as required by the SHSC. The SHSC will ensure that personnel are medically qualified and trained in the use of the PPE, and that the PPE is tested/inspected and found to be clean and in good working order.
- Authorized personnel with facial hair (i.e., over one day's growth) will not be allowed in the EZ whenever respiratory protection is required.
- Personnel and authorized visitors will remove and discard all disposable PPE prior to leaving the work site.
- Personnel and authorized visitors in the EZ must go through decontamination, including showers, before leaving the site.
- All personnel will be trained in the site-specific emergency procedures, including the location of emergency equipment, telephone numbers, and hospital route maps.
- Field personnel must use the "buddy system" at all times while working in designated work areas or EZs. If approved by the SHSC, an individual within the EZ may work alone but must be in continuous visual or verbal contact (e.g., cellular phones or two-way radio) with another authorized field team member.
- Equipment will be kept in proper working order and will be kept free of accumulated lubricants, contaminants, or other hazardous or flammable substances.
- Safety briefings will be held daily prior to the beginning of each shift.
- Field activities are to be conducted during daylight hours whenever possible. Any work conducted during evening or nighttime hours will require a minimum light intensity of 30 footcandles.

5.2 Dust Control

Throughout surface excavation, and material transport and disposal activities at Libby, the exposed subsurface soils and areas of dust generation will be thoroughly wetted at all times to control dust generation. A water truck will be used throughout these activities supplemented by sprinkler and pressurized hose. Water and, if necessary, magnesium chloride will be sprayed on haul roads. Detailed dust control information can be found in the Dust Control Plan for the Flyway site.

5.3 Personal Protective Equipment

The level of Personal Protection Equipment (PPE) required at a work site depends not only on existing conditions and hazards, but also on the specific work tasks to be performed.

29, a PPE Hazard Assessment has been conducted for the Flyway project.

To avoid or control exposure to potential chemical and physical hazards, personnel will be provided with, and required to use, PPE that is specific to the individual's work tasks and potential work site hazards. The SHSO and PM will ensure that the required PPE (e.g., protective footwear; and head, eye, face, hearing, and respiratory protection) is tested, inspected, and maintained in serviceable and sanitary condition during the course of field activities. Any defective PPE will be discarded or returned to the manufacturer.

The presence of asbestos and airborne dust concentrations in open, well-ventilated areas of Flyway work site where dust suppression is in place, particularly in the breathing space of field personnel, are not expected to exceed PELs (see Table A-3). The SHSO, or designee, will monitor the breathing space of field personnel during surface excavation and

contaminated material transportation and disposal (see Section 6.0) to evaluate the need for respiratory protection.

Table A-5 lists the required PPE for each of the work tasks at the Libby site.

These may be modified by SHSO.

In addition to PPE, the following protective equipment will be on site:

- First aid kits with Sawyer Extractor for bites;
- Safety cans;
- Chemical spill kit;
- Lockout/tagout kit;
- Eyewash bottles in every vehicle;
- Fire extinguishers in every vehicle, at fuel areas, and during hot work;
- Tape, barricades, warning signs, and cones; and
- Cellular telephone or other two-way communication system.

Table A-5. Task-Specific PPE Requirements

| Task | PPE |
|--|---|
| Mobilization and Site Preparation | Hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, work gloves. |
| Furnish/Install and Maintain Temporary Storage Areas | Hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, work gloves, body harness and lanyard in aerial lifts. |
| Transportation to and Disposal at Mine Site | Hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, nitrile surgical gloves, work gloves, polypropylene coverall, rubber boot covers; half-face air purifying respirators (APR) with HEPA cartridges. |
| Surface Excavation | Hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, nitrile surgical gloves, work gloves, polypropylene coverall, rubber boot covers, half-face air purifying respirators with HEPA cartridges. |
| Back Fill and Compaction | Hardhat, safety glasses, steel-toe boots, ear plugs, traffic safety vest, work gloves. |
| Equipment Decontamination | Rain suit, hardhat, face shield, rubber and steel-toe boots, ear plugs, traffic safety vest, nitrile gloves. |
| Hot Work | Welding hood with shaded lenses, welding respirator; flame-retardant clothing, (gloves, chaps, aprons), and hearing protection. No disposable protective clothing (e.g., Tyvek®) |

If necessary, NIOSH-approved, half-face air-purifying respirator (APR) with HEPA cartridge will be immediately available at the work sites.

Respiratory protection will be selected and maintained in accordance with the KEHs' respiratory protection program and in conformance with OSHA's revised Respiratory Protection Standard (29 CFR 1910.134). KEH's Respirator Standard Operating Procedure (SOP) form will be completed for each job task requiring respirators, prior to task start-up. Each working employee will be fit tested for a proper face piece seal using the quantitative fit test protocol. The employee is then assigned the same NIOSH-approved brand (MSA, North, 3M, etc.) type (half-face), and size respirator for their use. Personnel will be required

to perform positive and negative fit checks prior to donning the respirator at the beginning of the workday. The SHSC will instruct personnel in proper maintenance procedures, including daily cleaning, inspection, and replacement of cartridges when breathing resistance is encountered.

If conditions are encountered requiring a further upgrade, personnel will evacuate the work site and field activities would be halted until such time as the PM and SHSC establish it is safe to resume work.

6.0 AIR MONITORING

6.1 Background Air Samples

Background air sampling will consist of site perimeter sampling at specific locations on two separate days performed by TEM ISO 10312 and work area monitoring by PCM.

6.2 Daily Air Monitoring

KEH will conduct daily perimeter air monitoring during surface excavation and material disposal to verify that asbestos fibers are not being released. KEH will place portable air sampling pumps along the downwind perimeter of the EZ established for each of these tasks. Air samples will be collected according to NIOSH 7400 method and analyzed by PCM.

During surface excavation, contaminated material transport, and disposal at the mine, the SHSO will collect daily personal air samples for asbestos on workers. The SHSO will collect two daily samples from workers on the ground, heavy equipment operators, and haul truck drivers

6.3 Final Air Monitoring

At the conclusion of the project, KEH will also collect air samples at the same locations as its initial background perimeter samples for comparison to the background results.

6.4 Air Monitoring Summary

Table A-6 Air Monitoring Reference Table

| Sample | Sample Location | Test Method | Frequency |
|------------------------------|--|--------------------|----------------------------|
| Background | To be determined in the field | TEM | 2 day TBD* |
| Daily Perimeter | Same as selected for Background | PCM | Each day of field activity |
| Excavation and Soil Sampling | 10% of staff, minimum of 1 personnel in breathing zone | TWA | Each day of excavation |
| Final Background | Same locations as Background | TEM | 1 day, TBD* |

*TBD - To be determined.

7.0 SITE CONTROL

7.1 Work Site Access and Security

Access to the Flyway work site will be limited to one truck access and one personnel access point located at the Remedium trailer. All personnel are to check in and sign in at the trailer before accessing the work site. The access point will be posted with appropriate emergency numbers, OSHA poster, and warning, danger, caution, and notice signs, in accordance with 29 CFR 1910.145. Access to Libby work sites will be limited to authorized personnel. Only visitors who have received prior authorization from the Remedium PM will be permitted to enter the work site.

The Plant Manager will be responsible for coordinating site access control and security during field activities. Authorized visitors will be advised of the potential hazards at the work site and will not be allowed to enter designated work zones unless they meet all required training/medical qualifications, have reviewed the HASP, and agree to adhere to its requirements. A visitor log will be maintained at the field trailer, and authorized visitors will be required to sign in before entering.

7.2 Work Zones

An Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), and Support Zone (SZ) will be established for those areas of the Libby work site with known or suspected contamination (see Work Plan). These include surface excavation areas and contaminated material disposal areas.

The EZ represents an area of the work site where there is the greatest likelihood of exposure to physical or chemical hazards, and is generally limited to those areas where active work is being performed and there is a potential exposure to toxic or hazardous chemicals through inhalation, dermal/eye contact, and/or ingestion. The final size and

shape of the EZ will be determined by the SHSC based on potential hazards, site-specific conditions, site limitations, and the nature of the work tasks to be performed. The SHSO will mark the EX with appropriate high visibility fencing and asbestos warning signs during surface excavation, and contaminated material disposal tasks.

The CRZ will be established to provide a buffer zone where personnel can complete personal and equipment decontamination. The personnel decontamination trailer and equipment decontamination pad will be located in the CRZ upwind from the EZ boundary.

The SZ will constitute the clean safe area used for work site support, field trailer, sanitary facilities (portable toilets and potable water), and administrative activities. The SZ will be located in an area of the work site(s), upwind of the EZ and CRZ.

7.3 Buddy System

Personnel working within the EZ must use the "buddy system" at all times. Individuals within the EZ must be in visual or verbal contact (e.g., cellular phone or two-way radio) with another authorized field team member at the work site. The use of the "buddy system" will ensure field team members have the assistance of a partner able to observe symptoms of chemical exposure, illness, secure emergency assistance, notify management or response agencies in the event of an emergency, and provide other assistance that may be necessary. Enforcement of the buddy system will be the responsibility of the SHSC.

If approved by the SHSC, based on a review of work area conditions and operational activities, verbal or visual contact with another authorized field team member located at the Remedium field trailer but outside or away from the immediate work site may be sufficient to satisfy the "buddy system" requirement and permit routine activities within the EZ to be conducted by one individual.

7.4 Site Communications Plan

Radios will be with each work crew to communicate with the Remedium field trailer and each other. Telephones will be available at the Remedium site trailer to communicate with agencies and individuals outside of the work sit throughout field activities. In addition, the SHSC will establish emergency signals during the initial site safety briefing prior to initial field activities. Examples include:

EMERGENCY, NEED HELP: grasping throat with hand;

LEAVE AREA IMMEDIATELY: grasping other employee's wrist;

OK, I UNDERSTAND: thumbs up;

NO, I DON'T UNDERSTAND: thumbs down;

EMERGENCY, EVACUATE WORK SITE: continuous blast on compressed air horn or alarm; and

ALL CLEAR: two short blasts on air horn or alarm.

8.0 DECONTAMINATION

The extent of decontamination will depend primarily on the nature and extent of the contamination at a work site. The SHSC can modify procedures, as necessary, thereby adapting them to actual site conditions (e.g., changes in the nature and extent of contamination, PPE level, work tasks, etc.).

8.1 Personnel Decontamination

A negative-pressure personnel decontamination trailer will be provided at the Flyway site for personnel decontamination during surface excavation and contaminated material disposal tasks. The trailer will contain a clean area, showers, and dirty area. All personnel will be required to shower before leaving the site. Tyvek® coveralls worn as outer cover will be disposed of after each use.

All disposable PPE and other equipment will be properly disposed of in plastic trash bags. Any reusable PPE (e.g., outer work gloves, hardhats, safety glasses, rubber boot covers, respirators) that has been on contact with hazardous substances will be decontaminated before being reused.

The following doffing and decontamination sequence will be followed, a flow chart of which will be posted in the decontamination trailer for employees to refer to:

1. Exit EZ through the boot wash outside the decontamination trailer;
2. At the boot wash, clean rubber boot covers using a stiff brush and water;
3. Enter the dirty side of the CRZ decontamination trailer;
4. Remove and hang rubber boot covers on rack provided;
5. Remove outer work gloves, hard hat, safety glasses, traffic safety vest, and steel-toed boots, wipe down with a damp cloth, and set aside on clean shelf or bench;

6. Remove Tyvek® protective coveralls using the inside-out method and place in a lined trash can in the dirty area.
7. Wipe down the outside of the respirator and cartridges (if used), KEEP IT ON;
8. Remove inner surgical gloves and dispose of in lined trash can or plastic bag;
9. Wearing respirator enter shower area carrying work gloves, hardhat, safety glasses, traffic safety vests, and steel-toed boots and place on clean shelf or bench;
10. Shower then remove respirator by loosening straps and gently pulling the respirator over the top of the head leaving cartridges on during the workday but remove cartridges and dispose of in a lined container in the shower area at the end of the shift;
11. Carry respirator, work gloves, hardhat, safety glasses, traffic safety vests, and steel-toed boots to the clean area;
12. Store work gloves, hardhat, safety glasses, traffic safety vests, and steel-toed boots in lockers provided in the clean area;
13. Don street clothes;
14. At the end of the shift disassemble, clean, disinfect, and dry respirator in sink provided in clean area, place in clean plastic bag, and store in locker; and
15. Exit the decontamination trailer.

8.2 Equipment Decontamination

Heavy equipment, haul trucks, and other vehicles that have come into contact with potentially asbestos containing soil or vermiculite, will be decontaminated prior to leaving the Flyway site. A bermed decontamination pad with a high-pressure washer and splash curtains to contain overspray will be provided in the CRZ at the Flyway site. Contaminants and dirt will accumulate within the undercarriage, tracks, sprockets, axles, and tires of equipment and trucks. Consequently, it will be necessary to scrape, broom clean, and pressure wash this equipment before it leaves the CRZ.

Reusable equipment and tools will be cleaned by wash. If reusable sampling equipment is used, it will be decontaminated using a decontamination solution and followed by a series of distilled water rinses.

8.3 Disposition of Project-Derived Wastes

All disposable PPE, equipment, plastic sheeting, and other items will be placed in plastic trash bags for disposal. Spent washwater, rinsewaters, and rinseates will be discharged through a 5.0 micro filter into tanks for subsequent disposal in the sanitary sewer. The source will determine the ultimate disposition of these solutions in accordance with state and federal regulatory requirements [Resource Conservation and Recovery Act and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)]. Decontamination wastewater may be disposed of at the Flyway site disposal area, or into a sanitary sewer. The Plant Manager will ensure that wastes are properly containerized, secured, stored, and disposed.

9.0 EMERGENCY RESPONSE PROCEDURES

9.1 Introduction

In the event of any on-site emergencies at the Flyway site, the SHSC or Plant Manager will have the responsibility and authority for coordinating emergency response activities until proper authorities arrive and assume control. All personnel will follow the HASP emergency procedures.

In the event of an accident or incident, the SHSC will notify the PM and the SHSC as soon as possible. The SHSC will determine the need to evacuate field personnel off site to a safe place of refuge, and notify the appropriate emergency response agencies. Specifically, spills or fires resulting from the mishandling of petroleum products or fuels, and personal injury/illness resulting from exposure to physical hazards are the emergencies most likely to be encountered at the Flyway site. The local fire department and ambulance service will be best suited to handle these emergencies and are located within a reasonable distance to ensure adequate response time. The emergency response procedures presented in this section have been prepared to conform to OSHA standards as specified in 29 CFR 1910.138 as permitted by OSHA 29 CFR 1910.120(1)(1)(ii).

9.2 Pre-Emergency Planning

Pre-emergency planning activities associated with the Flyway project activities include the following:

- Meeting with the local emergency services and hospital personnel to ensure that proposed emergency response activities are compatible with existing emergency response procedures.
- Establishing and maintaining information at the Remedium field trailer for easy access in the event of an emergency. This information will include the following, and it will be the responsibility of the SHSC to ensure the information is available.

- Copies of the HASP,
- An inventory of chemical substances used on site, with corresponding MSDSs,
- Emergency contacts (see **Table A-7**),
- Site personnel records regarding medical treatment concerns (MDSs), and
- Log identifying personnel present on the site each day.

The provisions of the emergency response/contingency plan and emergency response procedures will be included as part of the site-specific training. The response procedures, evacuation routes, types and locations of emergency equipment (fire extinguishers, emergency eye wash/drench shower, first aid kit, etc.) and spill response material (pads, absorbents, tools), emergency alerting/alarm signals, and safe refuge location(s) will be discussed by the SHSC during follow-up or daily safety briefings for specific Flyway work site.

9.3 Emergency Recognition and Prevention

9.3.1 Recognition

Emergency situations are generally recognizable by visual observation. An injury or illness will be considered an emergency if it requires treatment other than first aid (i.e., requires treatment by a physician or other medical professional). A fire, beyond the incipient (beginning) stage, that cannot be put out with a fire extinguisher will be considered an emergency. A chemical release or spill will be considered an emergency when it can affect unprotected on-site personnel, off-site workers, and the environment. The type(s) of materials that could pose a public or environmental hazard if spilled include lubricating oils, hydraulic fluids, fuels, and wastewaters.

9.3.2 Prevention

Remediation will prevent emergencies by observing and complying with the provisions and requirements of the HASP, observing good work practices, proper maintenance of work site(s), inspecting equipment prior to start-up and throughout capping activities, daily safety inspections of the work site and drums/containers, and the use of approved and labeled DOT drums/containers to store fuels or other hazardous materials.

9.4 Safe Distances and Places of Refuge

In the event that the work site must be evacuated, all personnel will immediately stop activities and report to a designated upwind muster point in the SZ. Upon reporting, personnel will remain there until directed otherwise by the SHSC. The SHSC or designee will take roll at this location, using the log, to confirm the location of all field personnel.

9.5 Evacuation Routes and Procedures

An evacuation must be initiated whenever a fire/explosion or significant spill occurs or there is an imminent threat of such an occurrence, or when personnel show signs or symptoms of overexposure to potential site contaminants. In the event of an evacuation, personnel will proceed immediately to the upwind muster point in the SZ, unless doing so would further jeopardize the welfare of workers.

Evacuation procedures will be discussed daily prior to the initiation of any work at the site. Evacuation from the site depends on the location at which work is being performed. In general, the evacuation routes will be based on wind direction, which could change daily. It will be important for personnel to move crosswind until out of the path of smoke or vapors, to not evacuate in the same direction the wind is blowing, and to travel upwind to the predesignated muster point.

9.6 Decontamination Procedures/Emergency Medical Treatment

Decontamination procedures will be performed only if doing so does not further jeopardize the welfare of site workers. It will not be performed if it would further endanger the lives of workers through a delay in obtaining medical treatment, or from the potential hazards due to performing decontamination procedures at or near the site.

9.7 Emergency Alerting and Response Procedures

Because Remedium and subcontractor field personnel will be working in close proximity to each other, hand signals and voice commands will be sufficient to alert site personnel to an emergency. If necessary, the following hand signal communications will be used during activities at the site:

EMERGENCY, NEED HELP: grasping throat with hand.

LEAVE AREA IMMEDIATELY: grasping other employee's wrist.

OK, I UNDERSTAND: thumbs up.

NO, I DON'T UNDERSTAND: thumbs down.

EMERGENCY, EVACUATE WORK SITE: continuous blast on compressed air horn or alarm.

ALL CLEAR: two short blasts on air horn or alarm.

9.8 Spills, Accidental Releases

9.8.1 Response Procedures

The materials likely to be used or stored at the Flyway site in quantities that could present a potential hazard to field personnel or the environment if released or spilled include fuels (gasoline, diesel), lubricating oils, hydraulic fluids, magnesium chloride, and decontamination wastewater. The following spill prevention measures and procedures will be implemented by the SHSC and site personnel in the event of a significant release or spill exceeding 25 gallons:

- Notify the SHSC and PM immediately;
- Take immediate measures to control and contain the spill within the Flyway site boundary, away from storm drains, drainage ditches, and water courses;
- Remove and keep unnecessary personnel away from the spill, and isolate and define the extent of the spill or hazardous area;
- If there are vapors, gases, fumes, particulates, dust, or other airborne hazardous substances present, ensure that personnel remain upwind, and keep them out of low-lying areas where the gases or vapors can concentrate; and
- Prohibit the use of flames, sparks, smoking, or other sources of ignition in the area of the spill, and keep combustibles away from the spilled material.

For small dry spills, the SHSC or designee will shovel the contaminated material into dry containers, cover, and label the container. For small liquid spills, the SHSO or designee will apply absorbent material or pads to the spill and place the absorbent in a labeled container. All reusable tools and equipment used in any cleanup activity must be decontaminated before reuse. Contaminated disposable equipment or materials (sorbents, rags, dirt, etc.) must be discarded in appropriately labeled containers.

The SHSC must file a written report on the Accident/Incident Report form and submit the form to the PM and SHSC within 24 hours of the time of a spill. Gasoline or diesel spills greater than 25 gallons from an aboveground storage tank (any amount from an underground storage tank) must be reported to the Montana Department of Environmental Quality (see Table A-7).

9.8.2 Spill Prevention Measures

The SHSC, in concert with subcontractors, will implement or ensure that the following spill prevention measures are implemented to minimize the potential for spills of fuels, fluids, oils, or other hazardous materials:

- All drums/containers brought on site for storing or containing fuels, fluids, oils, or hazardous materials or wastes must meet DOT standards for their intended uses. The SHSC will inspect drums or containers prior to use, and any personnel using or

transporting such containers onto the Flyway site will be responsible for visually inspecting them prior to their use.

- All drums/containers will be properly labeled as to their contents. Unlabeled containers will be assumed to contain hazardous materials, until confirmed otherwise, and will be subject to appropriate handling.
- The SHSC and PM will work with subcontractors to minimize the number of containers used and transported on site.
- Personnel responsible for drum/container handling activities must be informed of the potential hazards presented by the operations and the importance of spill prevention during site-specific training.
- Damaged or weakened drums/containers that could rupture or leak must be overpacked, or the contents transferred into another DOT-approved or appropriate container.
- Stationary fuel storage tanks are to be diked.
- The SHSC will conduct regular inspections of operational areas to identify existing or potential spill or release conditions and ensure that appropriate corrective actions are implemented.

9.9 Fires

In the event of an explosion, large fire, or small fire that cannot be extinguished by the fire extinguishers available at the Flyway work site, the SHSC will notify the local fire department immediately and evacuate all unnecessary personnel from the work site to a safe upwind refuge area. The SHSC or Plant Manager will work with and advise the fire Incident Commander of the location, nature, and identification of fuels, or hazardous materials stored on site.

For small fires (fires that can be extinguished with a 20-pound ABC fire extinguisher), the SHSC will evacuate all unnecessary personnel from the immediate area threatened by the fire and attempt to extinguish the fire using the on-site fire extinguishers or by smothering the fire. The SHSC will then notify, as needed, local emergency response assistance (fire department, ambulance, emergency medical team).

9.10 Work Site Injury or Illness

The SHSC has the responsibility and authority to coordinate emergency medical response activities until proper emergency medical services (EMS) arrive at the work site. In the event of a minor injury, routine first aid procedures will be used immediately, particularly if blood is present. Medical follow-up exams may be required, depending on the nature of the injury or exposure. First aid kits will be maintained at Flyway work site for treating minor injuries. In the event of a serious injury or illness, field personnel will immediately notify the Emergency Medical Services (EMS) by dialing 911. The SHSC and one other member of the field team will have current certifications in first aid or CPR and will, if necessary, be able to provide emergency care before EMS arrives. Workers with suspected back or neck injuries are not to be moved. If there is evidence of serious trauma or unknown chemical exposure, the employee should be stabilized while awaiting EMS. The SHSC will determine whether there is sufficient contamination to warrant removal of garments and/or spraying the victim with water to remove the contamination.

In the event of respiratory exposure, dermal or eye contact, or ingestion of a potentially toxic substance, the following procedure will be followed:

Respiratory Exposure (Inhalation) – Move to fresh air immediately. Any loss of consciousness or exposure to elevated levels of toxic substances, even if the individual appears to have fully recovered, requires immediate treatment and/or surveillance by a qualified physician.

Dermal Contact – Wash/rinse affected area for at least 15 minutes. An emergency drench system will be available at the decontamination trailer. If clothing is contaminated and the extent of the injuries permit, remove the clothing and flood the skin with potable water. If necessary, the potable water supply provided at the site can also be used to

immediately flush skin or eyes. Ensure that the worker is immediately transported to the local hospital.

Eye Contact – Flush eye(s) with emergency eyewash bottles in vehicles. Transport to decontamination trailer and flush continuously for 15 minutes using portable emergency eyewash, then transport worker to the local hospital. Follow-up treatment or examination by a qualified physician is required.

Ingestion – Immediately transport to the local hospital. If the victim cannot be immediately transported to the emergency facility, call the EMS at 911. It may also be necessary to call the Regional Poison Control Center for instructions while waiting for EMS.

9.11 PPE and Emergency Equipment

Emergency response equipment and PPE will be maintained at the field trailer. The equipment will include at a minimum:

- Telephone or appropriate communication network to allow immediate contact with the fire department, ambulance, and Remedium supervisory personnel;
- Two 20-pound ABC fire extinguishers;
- Spill kit (sorbent materials, pads, booms, pillows and other materials and equipment appropriate to neutralize or contain the types of chemicals/substances present at the work site);
- First aid kit;
- Emergency eye wash/drench station, and/or a potable water source capable of providing sufficient water to flush exposed skin or eye(s) for a period of 15 minutes; and
- Extra sets of PPE consisting of rubber aprons, chemical resistant gloves and coveralls; rubber steel-toed boots, half-face respirator with combination organic vapor/P100 (HEPA) cartridges, safety glasses; hard hat with face shield; and ear plugs.

9.12 Emergency Contacts

Table A-7 provides a list of emergency telephone numbers and contacts. This list will be conspicuously posted in the Remedium field trailer and at work sites near the communication system, making it available to all field personnel. The list will be updated and revised as necessary to ensure the correct telephone numbers for all appropriate emergency assistance personnel, Remedium and local resources are always readily available to field personnel.

9.13 Recordkeeping

In addition to OSHA recordkeeping requirements, Remedium will maintain a file of H&S-related events occurring at the Flyway work site. Any exposure or potential exposure will be recorded, as well as accidents or incidents that require the filing of an Accident/Incident Report (e.g., injuries, illnesses, accidental damage to property, or "near miss" occurrences that could have resulted in personal injury). A copy of an Accident/Incident Report form is attached.

A HASP will be kept on site. An accident/incident reporting form will be kept on site when needed. An OSHA 200 form will also be kept on site. Any incidents or accidents will be noted on daily logs for reporting purposes.

Table A-7. Emergency Telephone Numbers

| | |
|--|----------------|
| Libby, MT Fire Department | 911 |
| Libby, MT Police | 911 |
| Libby, MT Ambulance | 911 |
| Hospital St. Johns Lutheran 350 Louisiana Avenue Libby, Montana | (406) 293-7761 |
| Montana DEQ 2209 Phoenix Ave., Helena, Montana | (406) 444-2544 |

10.0 HASP Approval, Review, and Documentation

Field personnel will review the HASP during the initial Flyway project briefing. The field team member(s) must sign the HASP Acknowledgement of Understanding form. The form will be maintained as part of the project H&S file.

The SHSC is responsible for informing all site personnel of any changes to the HASP and describing the specific details of the changes during safety meetings.

Field personnel will be informed in writing of the results of any monitoring or sampling conducted during remedial and other field activities, or any other information indicating possible work site exposure(s). Any data or other documentation indicating possible employee exposure to chemical hazards exceeding PELs will be forwarded to the employee and, at the employee's request, to his/her personal physician.

11.0 References

- American Conference of Governmental Industrial Hygienists (ACGIH). 1999TLVs® and BELs®, Threshold Limit Values for Chemical Substances and Physical Agents. Cincinnati OH. 1999.
- National Institute for Occupational Safety and Health (NIOSH). NIOSH Pocket Guide to Chemical Hazards. U.S. Department of Health and Human Services Publication No. 97-140. Cincinnati OH. 1997.
- NIOSH, OSHA, U.S. Coast Guard (USCG), U.S. Environmental Protection Agency (EPA), Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. U.S. Department of Health and Human Services (DHHS) Publication 85-115. DHHS Public Health Service, Centers for Disease Control, NIOSH, Washington D.C. 1985.
- U.S. Army Corps of Engineers (COE). Safety and Health Requirements Manual. EM 385-1-1. Washington D.C. 1996.
- U.S. Environmental Protection Agency (EPA). Standard Operating Safety Guides. Emergency Response Division, Environmental Response Branch, Office of Emergency and Remedial Response. Washington D.C. 1988.

ATTACHMENT A
TASK HAZARD ANALYSIS

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|---|---------------------|-------|---|
| Mobilization and Site Preparation <ul style="list-style-type: none"> • Movement of material and equipment to site. • Set up of site trailer. • Installation of site electrical. • Connex set up. • Establishment of traffic routes, parking, equipment laydown yards. • Fencing of areas. • Set up of personnel decontamination trailer. • Set up of sanitary facilities. • Set up of equipment decontamination pads. | Hazardous Chemicals | 2 | Minimize quantities of hazardous chemicals to only what is needed. No hazardous chemicals are to be brought on site without a Material Safety Data Sheet (MSDS). Maintain MSDSs for hazardous chemicals used on site, including subcontractors, in the job trailer. Store chemicals in approved containers. Properly label all chemical containers in accordance with the OSHA Hazard Communication Standard. Train employees exposed to hazardous chemicals during site safety briefings. |
| | Biological hazards | | Identify personnel with allergies and make necessary accommodations. Use cabbed equipment whenever available. If you are allergic to plant toxins, be alert and avoid those plants or use gloves and long sleeves when handling them. Check work areas for snakes and spiders. Check items for spiders before donning them to avoid spider bites. Be alert for presence of snakes. Train employees in the recognition of poisonous snakes and spiders indigenous to area. Dust suppression and PPE for work in areas where rodent feces is present. |
| | Traffic/Vehicles | 19,32 | Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 15 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests. |
| | Ladders | 28 | Inspect ladders before use; remove damaged ladders from service. Use wooden or fiberglass ladders around electrical lines. Place ladders on substantial base. Do not place ladders in doorways or other locations where they may be knocked over unless barricaded. Tie or block or provide a spotter to hold the ladder while in use. Four to one vertical to horizontal angle. Extend ladder three feet above landing. Only one person on ladder at a time. Maintain "three-point" contact with ladder at all times. Follow proper ladder lifting and carrying procedures; get help when needed. |
| | Noise | 26 | Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors. |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|--|-------------------------------------|-----|---|
| Mobilization and Site Preparation, (cont). | Electrical shock or Electrocutation | 12 | Temporary power installed per code by qualified electrician. Three-foot clearance around electrical boxes. GFCIs on all temporary cords. Grounding of electrical circuits. Check electrical cords for broken insulation and potential exposure to water/liquids. Thorough training and demonstration of competence to operate equipment. Three pronged grounded plug or double-insulated tools. Unplug (turn off power) or disconnect power source when servicing equipment and lockout/tagout. |
| | Lifting/Back Injury | 45 | Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots. |
| | Heavy Equipment | 19 | Be aware of the location of heavy equipment at all times. Establish hand signals to communicate with heavy equipment operators. Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching. Stay out of the swing radius of any equipment. Do not work under lifted loads. Never ride on the outside step of heavy equipment. Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked. Never get in between a dump truck bed and an open bed door. No horseplay when working around operating equipment of any kind. Only authorized, qualified operators are to operate heavy equipment. All equipment is to be inspected prior to arrival on site, then daily. Equipment will be maintained in good operating condition. Remove defective equipment from service. Rollover Protection (ROP) as required. Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized. Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots. Orange safety vests required in all areas of operating mobile equipment. Equipment must have functional back-up alarms, mirror, or spotters must be provided. Park equipment on level areas, ground all extensions, set emergency brake or chock wheels. Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool. Check cooling systems through overflow tank. Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks. Leave hydraulic system servicing/repairs to trained mechanic. |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|--|----------------------|-----|--|
| Mobilization and Site Preparation (cont.) | Hand and Power Tools | 16 | <p>All hand tools and power tools will be in good repair and will be used only for the task for which they were designed. All tools will be inspected prior to use and any tool that is damaged or defective will be tagged "out-of service" and will be repaired or destroyed.</p> <p>Surfaces and handles will be kept clean and free of excess oil to prevent slipping.</p> <p>Sharp tools will not be carried in pockets.</p> <p>Wrenches will have a good bite before pressure is applied.</p> <p>Only non-sparking tools will be used in atmospheres that exhibit fire or explosive characteristics.</p> <p>Cheater pipes will not be used.</p> <p>Wear required PPE, including work gloves and safety glasses.</p> <p>Do not operate any controls when hands are wet.</p> <p>Thorough training and demonstration of competence to operate equipment is required.</p> <p>GFCIs must be on all electrical cords.</p> <p>Only three-pronged grounded plug or double-insulated tools can be used.</p> <p>Check electrical cords for broken insulation and potential exposure to water/liquids.</p> <p>Machine guards must be in place.</p> <p>Machine guarding must not be removed for any reason except during necessary maintenance and repair.</p> <p>Lockout/tagout prior to work on machinery.</p> <p>Machine guards must be put back in place following maintenance and repair work.</p> <p>Warning signs will be posted at all machine guards indicating that personnel are not to operate the equipment unless guards are in place.</p> <p>Unplug (turn off power) or disconnect power source when servicing equipment <u>and</u> lock out/tag out.</p> <p>Never exceed maximum pressure ratings (30 psi).</p> <p>Never use compressed air to blow dust off of your body.</p> |
| | Slips, trips, falls | 21 | <p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|--|------------------------------|-------|--|
| Mobilization and Site Preparation (cont.) | Fire/ Explosion | 14,15 | <p>All electrical wiring, lights and other equipment in hazardous locations will be explosion proof.</p> <p>Bonding and grounding will be utilized for the transfer of all fuels and flammable liquids.</p> <p>Fire extinguishers will be kept immediately available during all fire risk activities (e.g. fueling).</p> <p>Refuel equipment in designated areas from approved fuel trucks or storage tanks.</p> <p>Stationary fuel storage tanks are to be diked.</p> <p>No matches, lighted or unlit cigarettes, cigars, cigarettes, pipes, or lighters will be taken into the area where work is being done or in any fueling areas.</p> <p>Approved safety cans will be used to store flammable liquids.</p> <p>Implement an emergency action plan to include employee notification, evacuation routes, assembly areas, and personnel accounting procedures.</p> |
| | Hot Work | 20 | <p>Complete Hot Work Permit and have it signed by the SHSO.</p> <p>Inspect area for flammables and combustibles prior to Hot Work.</p> <p>Test for flammable atmospheres; ventilate to less than 10% LEL.</p> <p>Maintain 20-lb. A:B:C fire extinguisher in welding/hotwork area, and a clear 35-foot radius around area free of flammable/combustible materials.</p> <p>Inspect equipment (e.g., cylinders, regulators, hoses, fittings) for leaks, keep fittings/equipment free of grease, oil or lubricant.</p> <p>Torches are to be lit only with friction spark lighters, and are never to be left unattended when lit.</p> <p>Cutting torches will be outfitted with anti-flashback back devices.</p> <p>Don proper PPE during welding (welding hood with shaded lenses, welding respirator; flame-retardant clothing, welding/cutting goggles, gloves, chaps, aprons), and hearing protection during cutting/grinding activities; no disposable protective clothing (e.g., Tyvek®).</p> <p>Position work to avoid contact with hot metal, falling slag and waste material (i.e., start at the top and work to bottom), do not weld or cut on concrete or gravel.</p> <p>All grinders to be equipped with guards and not to exceed specified grinding disc RPM.</p> <p>Inspect and "ring test" grinding wheels prior to use.</p> <p>Secure all cylinders in upright position with valve caps in place and stored in protected area away from heat, combustible and incompatible materials.</p> <p>Station a fire watch.</p> <p>Inspect area immediately after Hot Work, 30 minutes later, and at the end of the shift to verify that there is not smoldering material.</p> |
| | Pressurized gas cylinders | 15 | <p>Gas cylinder valves are to be closed when not in use</p> <p>Hoses are to be periodically inspected and replaced when worn or damaged</p> <p>Valve protection caps must always be kept on cylinders when they are being removed, stored, or until ready for use.</p> <p>Secure cylinders with chains or store in cylinder rack.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|--|--|-----|--|
| Mobilization and Site Preparation (cont.) | Severe weather conditions (e.g., lightning, high winds) | | Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard. Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters. Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas. Secure all equipment and material during high winds. Install and inspect mobile trailer tie-downs. |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|--|--------------------|-------|--|
| Furnish/Install and Maintain Temporary Storage Areas and Temporary Storage Buildings <ul style="list-style-type: none"> • Prepare gravel base for storage areas as needed. • Move cleaned materials to storage areas. • Set up temporary structures. • Installation of temporary power. | Biological hazards | | Identify personnel with allergies and make necessary accommodations. Use cabbid equipment whenever available. If you are allergic to plant toxins, be alert and avoid those plants or use gloves and long sleeves when handling them. Check work areas for snakes and spiders. Check items for spiders before donning them to avoid spider bites. Be alert for presence of snakes. Train employees in the recognition of poisonous snakes and spiders indigenous to area. Dust suppression and PPE for work in areas where rodent feces is present. |
| | Traffic/Vehicles | 19,32 | Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. |
| | Ladders | 28 | Inspect ladders before use; remove damaged ladders from service. Use wooden or fiberglass ladders around electrical lines. Place ladder on substantial base. Do not place ladders in doorways or other locations where they may be knocked over unless barricaded. Tie or block or provide a spotter to hold the ladder while in use. Four to one vertical to horizontal angle. Extend ladder three feet above landing. Only one person on ladder at a time. Maintain "three-point" contact with ladder at all times. Follow proper ladder lifting and carrying procedures; get help when needed. |
| | Noise | 26 | Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors. |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|---|-----------------------------------|-----|---|
| Furnish/Install and Maintain Temporary Storage Areas and Temporary Storage Buildings (cont.). | Electrical shock or electrocution | 12 | <p>Temporary power must be installed per code by qualified electrician.</p> <p>GFCIs required on all temporary cords.</p> <p>Electrical circuits must be grounded.</p> <p>There must be a three-foot clearance around electrical boxes.</p> <p>Check electrical cords for broken insulation and potential exposure to water/liquids.</p> <p>Thorough training and demonstration of competence to operate equipment is required.</p> <p>Three-pronged grounded plug or double-insulated tools only can be used.</p> <p>Unplug (turn off power) or disconnect power source when servicing equipment and lockout/tagout.</p> |
| | Lifting/Back Injury | 45 | <p>Conduct training on and practice safe lifting procedures.</p> <p>Get help when lifting heavy or awkwardly shaped objects.</p> <p>Use mechanical devices for heavy loads.</p> <p>Wear required PPE, including work gloves and steel-toed boots.</p> |
| | Heavy Equipment | 19 | <p>Be aware of the location of heavy equipment at all times.</p> <p>Establish hand signals to communicate with heavy equipment operators.</p> <p>Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching.</p> <p>Stay out of the swing radius of any equipment.</p> <p>Do not work under lifted loads.</p> <p>Never ride on the outside step of heavy equipment.</p> <p>Never stand beside a dump truck while bed is being raised or lowered; never go under a raised bed unless it is blocked.</p> <p>Never get in between a dump truck bed and an open bed door.</p> <p>No horseplay when working around operating equipment of any kind.</p> <p>Only authorized, qualified operators are to operate heavy equipment.</p> <p>All equipment is to be inspected prior to arrival on site, then daily inspection is required thereafter.</p> <p>Equipment maintained in good operating condition. Remove defective equipment from service.</p> <p>Rollover Protection (ROP) is required, as appropriate.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots.</p> <p>Orange safety vests are required in all areas of operating mobile equipment.</p> <p>Equipment must have functional back-up alarms and mirror, or spotters must be provided.</p> <p>Park equipment on level areas, ground all extensions, set emergency brake or chock wheels.</p> <p>Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool.</p> <p>Check cooling systems through overflow tank.</p> <p>Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks.</p> <p>Leave hydraulic system servicing/repairs to trained mechanic.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|---|----------------------|-----|---|
| Furnish/Install and Maintain Temporary Storage Areas and Temporary Storage Buildings (cont.). | Hand and Power Tools | 16 | <p>All hand tools and power tools will be in good repair and will be used only for the task for which they were designed.</p> <p>All tools will be inspected prior to use and any tool that is damaged or defective will be tagged "out-of service" and will be repaired or destroyed.</p> <p>Surfaces and handles will be kept clean and free of excess oil to prevent slipping.</p> <p>Sharp tools will not be carried in pockets.</p> <p>Wrenches will have a good bite before pressure is applied.</p> <p>Only non-sparking tools will be used in atmospheres, which exhibit fire or explosive characteristics.</p> <p>Cheater pipes will not be used.</p> <p>Wear required PPE, including work gloves and safety glasses.</p> <p>Thorough training and demonstration of competence to operate equipment is required.</p> <p>Do not operate any controls when hands are wet; GFCIs on all electrical cords are required.</p> <p>Three-pronged grounded plug or double-insulated tools is required.</p> <p>Check electrical cords for broken insulation and potential exposure to water/liquids.</p> <p>Machine guards must be in place.</p> <p>Machine guarding must not be removed for any reason except during necessary maintenance and repair.</p> <p>Lockout/tagout must be performed prior to work on machinery.</p> <p>Machine guards must be put back in place following maintenance and repair work.</p> <p>Warning signs will be posted at all machine guards indicating that personnel are not to operate the equipment unless guards are in place.</p> <p>Unplug (turn off power) or disconnect power source when servicing equipment <u>and</u> lockout/or tagout.</p> <p>Never exceed maximum pressure ratings (30 psi).</p> <p>Never use compressed air to blow dust off of your body.</p> |
| | Slips, trips, falls | 21 | <p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|---|------------------------|-------|--|
| Furnish/Install and Maintain Temporary Storage Areas and Temporary Storage Buildings (cont.). | Falls from aerial lift | 7,40 | <p>Only trained, qualified personnel are to operate aerial lifts.</p> <p>Review manufacturer's operation instructions prior to use.</p> <p>Provide personal fall arrest harness and lanyard.</p> <p>Train and certify personnel in basket in personal fall arrest systems.</p> <p>All aerial lifts are to be inspected prior to arrival on site, then daily thereafter.</p> <p>Survey route of travel for obstructions, overhead hazards.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Set aerial lift brake and chock wheels on incline prior to use.</p> |
| | Cranes and rigging | 38,41 | <p>Any cranes that are to be used on the site will require proof of annual inspection by a qualified competent person within the last 12 months.</p> <p>Cranes/booms/hoists must be inspected by a qualified competent person prior to use after each installation.</p> <p>The crane/boom/hoist must be inspected and tested daily prior to each use by the operator and the inspection documented to the Project Files. Any defects must be corrected before use.</p> <p>Rated load capacities, recommended operating speeds, and special hazard warnings or instructions must be conspicuously posted on all equipment. Instructions or warnings must be visible from the operator's station.</p> <p>No modification to any cranes/hoists will be acceptable without the written approval of the manufacturer or designed by a Registered Professional Engineer.</p> <p>The weights of all loads must be known or a load indicating device must be used.</p> <p>Only qualified, licensed crane operators can be used.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>At no time can any worker on the ground be allowed under a load or within the swing radius of a load.</p> <p>Ground personnel will not attempt to guide or move suspended loads except with the use of "tag lines".</p> <p>Accessible areas within swing radius of a crane must be barricaded to prevent employees from being struck or crushed by the crane.</p> <p>Crane operators will follow the direction of the designated rigger/signalman.</p> <p>All rigging must be inspected by a competent person and marked as inspected before each use and annually.</p> <p>All rigging must be clearly labeled as to capacity. All rigging will be stored in a loft or equivalent area where it will not be exposed to the elements.</p> <p>Wire ropes must be kept in good repair without deformities. Softeners must be used when wire rope is used for hoisting in a basket configuration. Use the 3:6 rule on broken wires.</p> <p>Synthetic slings must be carefully maintained. Any synthetic sling whose red warning has been exposed will be removed from service.</p> <p>Knots will not be tied in rigging.</p> <p>All riggers/signalmen must be trained and provided with rigging handbook.</p> <p>Provide safety latches on all load hooks.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|---|--|-----|---|
| Furnish/Install and Maintain Temporary Storage Areas and Temporary Storage Buildings (cont.). | Severe weather conditions (e.g. lightning, high winds) | | <p>Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard.</p> <p>Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters.</p> <p>Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas.</p> <p>Secure all equipment and material during high winds.</p> <p>Install and inspect mobile trailer tie-downs.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|------------------------|----------------------|-----|--|
| Demobilization (cont.) | Hand and Power Tools | 16 | <p>All hand tools and power tools will be in good repair and will be used only for the task for which they were designed. All tools will be inspected prior to use and any tool that is damaged or defective will be tagged "out-of service" and will be repaired or destroyed.</p> <p>Surfaces and handles will be kept clean and free of excess oil to prevent slipping.</p> <p>Sharp tools will not be carried in pockets.</p> <p>Wrenches will have a good bite before pressure is applied.</p> <p>Only non-sparking tools will be used in atmospheres, which exhibit fire or explosive characteristics.</p> <p>Cheater pipes will not be used.</p> <p>Wear required PPE, including work gloves and safety glasses.</p> <p>Operators will be trained thoroughly and will demonstrate competence to operate equipment.</p> <p>Do not operate any controls when hands are wet.</p> <p>GFCIs must be on all electrical cords.</p> <p>Three-pronged grounded plug or double-insulated tools will be used.</p> <p>Check electrical cords for broken insulation and potential exposure to water/liquids.</p> <p>Machine guards must be in place.</p> <p>Machine guarding must not be removed for any reason except during necessary maintenance and repair.</p> <p>Lockout/tagout must be done prior to work on machinery.</p> <p>Machine guards must be put back in place following maintenance and repair work.</p> <p>Warning signs will be posted at all machine guards indicating that personnel are not to operate the equipment unless guards are in place.</p> <p>Unplug (turn off power) or disconnect power source when servicing equipment <u>and</u> lockout/tagout.</p> <p>Never exceed maximum pressure ratings (30 psi).</p> <p>Never use compressed air to blow dust off of your body.</p> |
| | Slips, trips, falls | 21 | <p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connex boxes, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|------------------------|---------------------------|-------|---|
| Demobilization (cont.) | Fire/Explosion | 14,15 | <p>All electrical wiring, lights and other equipment in hazardous locations will be explosion proof.</p> <p>Bonding and grounding will be utilized for the transfer of all fuels and flammable liquids.</p> <p>Fire extinguishers will be kept immediately available during all fire risk activities (e.g. fueling).</p> <p>Refuel equipment in designated areas from approved fuel trucks or storage tanks.</p> <p>Stationary fuel storage tanks will be diked.</p> <p>No matches, lighted or unlit cigarettes, cigars, pipes, or lighters will be taken into the area where work is being done or in any fueling areas.</p> <p>Approved safety cans will be used to store flammable liquids.</p> <p>Implement an emergency action plan to include employee notification, evacuation routes, assembly areas, and personnel accounting procedures.</p> |
| | Hot Work | 20 | <p>Complete Hot Work Permit and have it signed by the SHSO.</p> <p>Inspect area for flammables and combustibles prior to Hot Work.</p> <p>Test for flammable atmospheres; ventilate to less than 10% LEL.</p> <p>Maintain 20-lb. A:B:C fire extinguisher in welding/hotwork area and a clear 35-foot radius around area free of flammable/combustible materials.</p> <p>Inspect equipment (e.g., cylinders, regulators, hoses, fittings) for leaks, keep fittings/equipment free of grease, oil or lubricant.</p> <p>Torches are to be lit only with friction spark lighters, and are never to be left unattended when lit.</p> <p>Cutting torches will be outfitted with anti-flashback devices.</p> <p>Don proper PPE during welding (welding hood with shaded lenses, welding respirator; flame-retardant clothing, welding/cutting goggles, gloves, chaps, aprons), and hearing protection during cutting/grinding activities; no disposable protective clothing (e.g., Tyvek®).</p> <p>Position work to avoid contact with hot metal, falling slag and waste material (i.e., start at the top and work to bottom), do not weld or cut on concrete or gravel.</p> <p>All grinders are to be equipped with guards and are not to exceed specified grinding disc RPM.</p> <p>Inspect and "ring test" grinding wheels prior to use.</p> <p>Secure all cylinders in upright position with valve caps in place and store in protected area away from heat, combustible and incompatible materials.</p> <p>Station a fire watch.</p> <p>Inspect area immediately after Hot Work, 30 minutes later, and at the end of the shift to verify that there is not smoldering material.</p> |
| | Pressurized gas cylinders | 15 | <p>Gas cylinder valves are to be closed when not in use.</p> <p>Hoses are to be periodically inspected and replaced when worn or damaged.</p> <p>Valve protection caps must always be kept on cylinders when they are being removed, stored, or until ready for use.</p> <p>Secure cylinders with chains or store in cylinder rack.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|------------------------|---|-----|---|
| Demobilization (cont.) | Severe weather conditions (e.g., lightning, high winds) | | <p>Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard.</p> <p>Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters.</p> <p>Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas.</p> <p>Secure all equipment and material during high winds.</p> <p>Install and inspect mobile trailer tie-downs.</p> |

Notes:

| | | |
|------|---|---|
| CDL | = | Commercial driver's license |
| dba | = | decibel in A-weighted scale |
| DRI | = | Direct reading instrument |
| GFCI | = | Ground fault circuit interrupter |
| LEL | = | Lower explosive limit |
| mph | = | miles per hour |
| MSDS | = | Material safety data sheet |
| OSHA | = | Occupational Safety and Health Administration |
| PjM | = | Project Manager |
| PPE | = | Personal protective equipment |
| psi | = | pounds per square inch |
| ROP | = | Rollover protection |
| RPM | = | Revolutions per minute |
| SHSO | = | Site Health and Safety Officer |
| SMS | = | Safety Management Standard |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|---|--|-------|--|
| Transportation to and Disposal at Mine Site <ul style="list-style-type: none"> Truck decontamination Haul material to mine. Grading contaminated material at the mine. Covering contaminated material at the mine. | Burns, lacerations, contusions, eye injury during decontamination of equipment using steam or pressure washers | | Wear proper PPE (hardhat, face shields, ear plugs, rubber apron, gloves, steel-toed boots, Tyvek® coverall) Never point nozzle at personnel. Operate only within prescribed decon area. |
| | Traffic/Vehicles | 19,32 | Implement traffic control plan. Haul truck drivers must have CDLs. Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area or 20 mph on mine access road. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests. |
| | Inhalation of airborne asbestos fibers and total particulates | 8,43 | Implement dust control plan. Material must be thoroughly wetted prior to transport. Loads must be covered. PPE per Table B-6. Truck operators are to remain in truck cab, with window closed during loading and hauling. Personnel are to work or stand on the upwind side of contamination. |
| | Noise | 26 | Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors. |
| | Lifting/Back Injury | 45 | Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots. |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|---|-----------------|-----|--|
| Transportation to and Disposal at Mine Site (cont.) | Heavy Equipment | 19 | <p>Be aware of the location of heavy equipment at all times.</p> <p>Establish hand signals to communicate with heavy equipment operators.</p> <p>Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching.</p> <p>Stay out of the swing radius of any equipment.</p> <p>Do not work under lifted loads.</p> <p>Never ride on the outside step of heavy equipment.</p> <p>Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked.</p> <p>Never get in between a dump truck bed and an open bed door.</p> <p>No horseplay when working around operating equipment of any kind.</p> <p>Only authorized, qualified operators are to operate heavy equipment.</p> <p>All equipment is to be inspected prior to arrival on site, then daily.</p> <p>Equipment must be maintained in good operating condition. Remove defective equipment from service.</p> <p>ROP as required.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots.</p> <p>Orange safety vests are required in all areas of operating mobile equipment.</p> <p>Equipment must have functional back-up alarms, mirror, or spotters must be provided.</p> <p>Park equipment on level areas, ground all extensions, set emergency brake or chock wheels.</p> <p>Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool.</p> <p>Check cooling systems through overflow tank.</p> <p>Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks.</p> <p>Leave hydraulic system servicing/repairs to trained mechanic.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|---|--|-----|---|
| Transportation to and Disposal at Mine Site (cont.) | Slips, trips, falls | 21 | <p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p> |
| | Severe weather conditions (e.g. lightning, high winds) | | <p>Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard.</p> <p>Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters.</p> <p>Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas.</p> <p>Secure all equipment and material during high winds.</p> <p>Install and inspect mobile trailer tie-downs.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|--|--|-------|--|
| Surface Excavation <ul style="list-style-type: none"> Clearing a grubbing Remove 6 to 18 inches of soil Load haul trucks Hand digging Soil sampling Equipment decontamination | Burns, lacerations, contusions, eye injury during decontamination of equipment using steam or pressure washers | | Wear proper PPE (hardhat, face shields, ear plugs, rubber apron, gloves, steel-toed boots, Tyvek® coverall) Never point nozzle at personnel. Operate only within prescribed decon area. |
| | Traffic/Vehicles | 19,32 | Implement traffic control plan. Haul truck drivers must have CDLs. Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests. |
| | Underground utilities | 34 | Prior to performing excavation, clear and flag utility locations. Hand-probe locate utilities prior to excavation. Support exposed piping to prevent breakage. |
| | Inhalation of airborne asbestos fibers and total particulates | 8,43 | Implement dust control plan. Material must be thoroughly wetted prior to transport. Loads must be covered. PPE per Table B-6. Truck operators are to remain in truck cab, with window closed during loading and hauling. Personnel are to work or stand on the upwind side of contamination. |
| | Heat Stress | 18 | Monitor work site temperatures; Monitor workers for early signs of heat stress, take body temperatures as necessary; Follow heat stress work rest cycles per SMS. Provide drinking water, work breaks, scheduling during cooler parts of day. |
| | Noise | 26 | Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors. |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|----------------------------|---------------------|-----|--|
| Surface Excavation (cont.) | Lifting/Back Injury | 45 | <p>Conduct training on and practice safe lifting procedures.</p> <p>Get help when lifting heavy or awkwardly shaped objects.</p> <p>Use mechanical devices for heavy loads.</p> <p><i>Wear required PPE, including work gloves and steel-toed boots.</i></p> |
| | Heavy Equipment | 19 | <p>Be aware of the location of heavy equipment at all times.</p> <p>Establish hand signals to communicate with heavy equipment operators.</p> <p>Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching.</p> <p>Stay out of the swing radius of any equipment.</p> <p>Do not work under lifted loads.</p> <p>Never ride on the outside step of heavy equipment.</p> <p>Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked.</p> <p>Never get in between a dump truck bed and an open bed door.</p> <p>No horseplay when working around operating equipment of any kind.</p> <p>Only authorized, qualified operators are to operate heavy equipment.</p> <p>All equipment is to be inspected prior to arrival on site, then daily.</p> <p>Equipment must be maintained and in good operating condition. Remove defective equipment from service.</p> <p>Rollover Protection (ROP) as required.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots.</p> <p>Orange safety vests are required in all areas of operating mobile equipment.</p> <p>Equipment must have functional back-up alarms, mirror, or spotters must be provided.</p> <p>Park equipment on level areas, ground all extensions, set emergency brake or chock wheels.</p> <p>Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool.</p> <p>Check cooling systems through overflow tank.</p> <p>Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks.</p> <p>Leave hydraulic system servicing/repairs to trained mechanic.</p> |
| | Slips, trips, falls | 21 | <p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Conexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|----------------------------|--|-----|--|
| Surface Excavation (cont.) | Severe weather conditions (e.g. lightning, high winds) | | Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard. Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters. Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas. Secure all equipment and material during high winds. Install and inspect mobile trailer tie-downs. |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|---|---------------------|-------|--|
| Backfill and Compaction <ul style="list-style-type: none"> • Loading and hauling backfill • Grading backfill | Traffic/Vehicles | 19,32 | Implement traffic control plan. Haul truck drivers must have CDLs. Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests. |
| | Noise | 26 | Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors. |
| | Lifting/Back Injury | 45 | Conduct training on and practice safe lifting procedures. Get help when lifting heavy or awkwardly shaped objects. Use mechanical devices for heavy loads. Wear required PPE, including work gloves and steel-toed boots. |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|-------------------------------------|--|-----|--|
| Back Fill and Compaction (cont.) | Heavy Equipment | 19 | <p>Be aware of the location of heavy equipment at all times.</p> <p>Establish hand signals to communicate with heavy equipment operators.</p> <p>Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching.</p> <p>Stay out of the swing radius of any equipment.</p> <p>Do not work under lifted loads.</p> <p>Never ride on the outside step of heavy equipment.</p> <p>Never stand beside a dump truck while bed is being raised or lowered, never go under a raised bed unless it is blocked.</p> <p>Never get in between a dump truck bed and an open bed door.</p> <p>No horseplay when working around operating equipment of any kind.</p> <p>Only authorized, qualified operators are to operate heavy equipment.</p> <p>All equipment is to be inspected prior to arrival on site, then daily.</p> <p>Equipment must be maintained and be in good operating condition. Remove defective equipment from service. ROP as required.</p> <p>Ten-foot minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots.</p> <p>Orange safety vests are required in all areas of operating mobile equipment.</p> <p>Equipment must have functional back-up alarms, mirror, or spotters must be provided.</p> <p>Park equipment on level areas, ground all extensions, set emergency brake or chock wheels.</p> <p>Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool.</p> <p>Check cooling systems through overflow tank.</p> <p>Shut down equipment in event of hydraulic system failure, contain fluid/fuel line leaks.</p> <p>Leave hydraulic system servicing/repairs to trained mechanic.</p> |
| | Slips, trips, falls | 21 | <p>Locate trailers and storage areas on level ground.</p> <p>Keep the work area free of miscellaneous materials and equipment.</p> <p>Conspicuously mark areas where trip hazards are present.</p> <p>Fill in holes or uneven terrain prior to the start of work.</p> <p>Install and maintain proper stairways on trailers, Connexs, etc.</p> <p>Keep stairs free of ice.</p> <p>Practice good housekeeping at all times, always maintain clear view of walking path especially when on stairs, do not walk over or through materials-use walkways. Watch for and avoid muddy, wet, icy areas when walking. Use "three point" rule when mounting and dismounting equipment.</p> |
| | Severe weather conditions (e.g. lightning, high winds) | | <p>Terminate outdoor field activities if high winds, electrical storms, heavy rains, visibility-impairing conditions pose potential safety hazard.</p> <p>Remain alert for warnings, alerts, or signs of impending tornadoes and the location of the closest shelters.</p> <p>Provide shelter or cover, as feasible, and non-slip safety matting in slippery open areas.</p> <p>Secure all equipment and material during high winds.</p> <p>Install and inspect mobile trailer tie-downs.</p> |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|--|---------------------|-------|---|
| Demobilization <ul style="list-style-type: none"> • Movement of material and equipment offsite. • Take down of site trailer. • Removal of site electrical. • Connex take down. • Removal of fencing. • Removal of personnel decontamination trailer. • Removal of sanitary facilities. • Take down of equipment decontamination pads. • Removal/dismantlement of temporary pole barns. | Hazardous Chemicals | 2 | Remove hazardous chemical to off-site storage for future use. Send MSDSs with chemicals. Verify proper containers and labeling of chemicals prior to removal. Train employees exposed to hazardous chemicals during site safety briefings. |
| | Biological hazards | | Identify personnel with allergies and make necessary accommodations. Use cabbed equipment whenever available. If you are allergic to plant toxins, be alert and avoid those plants or use gloves and long sleeves when handling them. Check work areas for snakes and spiders. Check items for spiders before donning them to avoid spider bites. Be alert for presence of snakes. Train employees in the recognition of poisonous snakes and spiders indigenous to area. Dust suppression and PPE for work in areas where rodent feces is present. |
| | Traffic/Vehicles | 19,32 | Inspect work and travel area to verify that it will support heavy equipment traffic. Establish marked parking area for personal vehicles and visitors. Follow only the designated traffic routes. Obey all traffic signs and controls. Do not drive over 5 mph in the work area. Cone or barricade work/storage areas. Wear seat belts in moving vehicles at all times. Do not ride in truck beds. Wear traffic safety vests. |
| | Ladders | 28 | Inspect ladders before use; remove damaged ladders from service. Use wooden or fiberglass ladders around electrical lines. Place ladder on substantial base. Do not place ladders in doorways or other locations where they may be knocked over unless barricaded. Tie or block or provide a spotter to hold the ladder while in use. Use four to one vertical to horizontal angle. Extend ladder three feet above landing. Only one person can be on ladder at a time. Maintain "three-point" contact with ladder at all times. Follow proper ladder lifting and carrying procedures; get help when needed. |
| | Noise | 26 | Identify and post high noise level areas. Avoid high noise areas, limit exposure to noise to short periods. Wear hearing protection in areas where noise levels exceed 85dBA such as around heavy equipment (if you have to shout within three feet to communicate, may exceed 85 dBA). Enclose or muffle high noise equipment such as engines, pumps, and compressors. |

Attachment A, Task Hazard Analysis

| Work Task | Hazard | SMS | Control Measures |
|------------------------|-----------------------------------|-----|---|
| Demobilization (cont.) | Electrical shock or electrocution | 12 | <p>Temporary power must be removed per Code by qualified electrician.</p> <p>GFCIs must be on all temporary cords.</p> <p>Check electrical cords for broken insulation and potential exposure to water/liquids.</p> <p>Thorough training and demonstration of competence to operate equipment is required.</p> <p>Three-pronged grounded plug or double-insulated tools must be used.</p> <p>Unplug (turn off power) or disconnect power source when servicing equipment and lockout/tagout.</p> |
| | Lifting/Back Injury | 45 | <p>Conduct training on and practice safe lifting procedures.</p> <p>Get help when lifting heavy or awkwardly shaped objects.</p> <p>Use mechanical devices for heavy loads.</p> <p>Wear required PPE, including work gloves and steel-toed boots.</p> |
| | Heavy Equipment | 19 | <p>Be aware of the location of heavy equipment at all times.</p> <p>Establish hand signals to communicate with heavy equipment operators.</p> <p>Do not approach a piece of heavy equipment from behind, or without getting the operator's attention first to let him know you are approaching.</p> <p>Stay out of the swing radius of any equipment.</p> <p>Do not work under lifted loads.</p> <p>Never ride on the outside step of heavy equipment.</p> <p>Never stand beside a dump truck while bed is being raised or lowered; never go under a raised bed unless it is blocked.</p> <p>Never get in between a dump truck bed and an open bed door.</p> <p>No horseplay when working around operating equipment of any kind.</p> <p>Only authorized, qualified operators are to operate heavy equipment.</p> <p>All equipment is to be inspected prior to arrival on site, then daily thereafter.</p> <p>Equipment must be maintained in good operating condition. Remove defective equipment from service.</p> <p>Use ROP as required.</p> <p>Ten feet minimum clearances from power lines as described in OSHA regulations must be followed or the lines must be de-energized.</p> <p>Wear the appropriate personal protective equipment including hardhat, eye protection, and steel-toe boots.</p> <p>Orange safety vests are required in all areas of operating mobile equipment.</p> <p>Equipment must have functional back-up alarms, mirror, or spotters must be provided.</p> <p>Park equipment on level areas, ground all extensions, set emergency brake or chock wheels.</p> <p>Assume equipment is hot, don't touch exhaust pipes, mufflers, radiators, radiator caps, hoses until equipment has been allowed to cool.</p> <p>Check cooling systems through overflow tank.</p> <p>Shut down equipment in the event of hydraulic system failure, contain fluid/fuel line leaks.</p> <p>Leave hydraulic system servicing/repairs to trained mechanic.</p> |

ATTACHMENT B

AIR MONITORING/INDUSTRIAL HYGIENE PROJECT PLAN

1.0 Introduction

The following describes the proposed air monitoring/industrial hygiene strategies to be provided by Koch Environmental Health, Inc. (KEH) for Remedium in support of the removal of the important soil at the Flyway site. Please note that this sampling plan has been designed to incorporate project-specific changes and/or provide flexibility in altering the plan to safely meet the intent and goals of the project. This plan has been developed by a Certified Industrial Hygienist/Asbestos Project Designer and may be altered in the field based on actual project conditions. Any changes to this plan will be coordinated in the field based on actual project conditions. Any changes to this plan will be coordinated through Remedium, will be implemented only after approval by SHO and the EPA. KEH will support Remedium in achieving the objective of the project in the most safe and healthful manner possible and in meeting or exceeding OSHA, EPA, and State of Montana requirements for asbestos control. This plan will apply to asbestos removal/decontamination in all work areas at the Flyway site, although changes or alterations may be made in some work areas as conditions deem them necessary. Target work areas will include the following:

- Surface Excavation, general; and
- Soil Sampling.

KEH Industrial Hygienists will use the most efficient sampling and analytical methods and will provide those services necessary to meet the safe completion of each project. KEH will conduct all asbestos work using personnel trained and certified in accordance with requirements of the EPA and the State of Montana with respect to Asbestos Professionals.

2.0 Air Monitoring Plan

All air monitoring for this project will be conducted in accordance with the project requirements with the intent of meeting the goals of the project in a safe and healthful manner. The KEH Project Manager will coordinate all sampling activities with the designated Remedium Representative to ensure that all affected removal areas and appropriate monitoring points (i.e., clean rooms) are monitored by an experienced asbestos professional. All visual inspections and air monitoring will be conducted in accordance with EPA and State of Montana requirements regarding asbestos control. The air sampling plan for this project involves monitoring via either Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM) method.

KEH will work within the project requirements to implement a sampling strategy designed to efficiently and economically determine airborne asbestos (fiber) levels in and around each work area in the interest of protecting human health and the environment. PCM air samples will be collected as appropriate utilizing the NIOSH 7400 Method, A Counting Rules. PCM samples will be used as a general means for monitoring airborne fiber levels in and around each work area, although this type of analysis is non-specific for asbestos fibers. PCM monitoring is useful in tracking and determining airborne fiber levels and provides an efficient and economic means to assess airborne fiber concentrations as they related to asbestos removal.

TEM analysis is specific for asbestos fibers and can be used as a tool for determining actual asbestos concentrations in air samples collected. TEM sampling will be used for asbestos determination in airborne samples as necessary and may be used for perimeter background. In some cases, both PCM and TEM samples may be collected simultaneously (i.e., side-by-side) for use in determining effective fiber control strategies.

Perimeter air samples will be collected for TEM analysis prior to intrusive work to determine ambient or background airborne contaminant levels. Perimeter air samples will

be collected on two separate days prior to intrusive work at the site at locations determined in the field. Perimeter samples will be collected during each day during soil excavation for PCM analysis.

2.1 Sample Collection

Phase Contrast Microscopy (PCM) samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm². Transmission Electron Microscopy (TEM) samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.1 micron pore size, with an effective collection area of 385 mm². All filters used by KEH are pre-assembled by the manufacturer in three-stage, conductive sampling cassettes with extension cowl. Asbestos removal is a dynamic process and may necessitate altering sampling strategies regarding the numbers, locations, and types (e.g., PCM, TEM) of samples collected in and around each work area.

Depending upon weather conditions high volume air samples will be collected at flow rates between 2.0 and 10.0 liters per minute (L/m) for PCM and TEM sampling. Low volume pumps for personal samples will be operated at .5 to 2.5 liters per minute. KEH Representatives will use professional judgment and expertise in determining sample flow rates and locations based upon project conditions. Flow rates will be recorded at the beginning and at the end of the sampling period utilizing an airflow rotameter calibrated against a primary flow calibration instrument (DryCal DC Lite #DCL739). Start times and stop times will be recorded for all sampling periods. KEH will maintain a primary flow calibration instrument on-site at all times during this project and will maintain calibration records on site for review by the Remedium representative.

2.2 Laboratory Analysis

To ensure state-of-the-art quality control, all analysis will be conducted by RJ Lee Group, Inc., accredited by the American Industrial Hygiene Association (AIHA) and/or the National Voluntary Laboratory Accreditation Program (NVLAP) for analysis of PCM and TEM air samples. Results of all air samples will be posted in or around the affected work area within 24 hours for (PCM) or upon laboratory forwarding of analysis for TEM.

2.3 CIH Review and Sign-Off

Upon completion of the project, a final technical report will be generated by KEH that describes the project activities, air sample results, and visual inspection data. All standard operating procedures and technical reports have been developed by KEH's staff CIH to ensure that our clients are provided reliable technical data. All technical reports for this project will be developed, reviewed, and signed by a CIH.

2.4 Equipment

KEH maintains a complete inventory of air sampling pumps, calibration equipment, and sampling media necessary to conduct the work at multiple projects and multiple project locations. Our inventory for air sampling consists of up to 40 high volume, adjustable sampling pumps, up to 30 low-volume battery-operated pumps, and all of the necessary support equipment, including calibrated rotameters, primary flow standards and associated electrical and personal protective equipment. All of our rotameters are calibrated against a primary flow calibration standard (Dry Cal DC Lite) quarterly. An inventory of up to 20 high-volume pumps and 10-15 low-volume (i.e., battery) pumps will be maintained on site to support air monitoring requirements for the project.

KEH utilizes Thomas brand electric high-volume sampling pumps capable of running at 1-15 liters per minute continuously for multiple shifts. KEH battery pumps have a typical run-discharge cycle of approximately 16 hours for full shift coverage when work area conditions do not allow for electric pumps. Multiple battery pump and battery packs will be

maintained on site to adequately monitor the project on a daily basis and allow for charge-discharge cycles, pump failures, and backup capabilities. The KEH inventory also holds other types of IH sampling equipment including respirable particulate cyclones, real-time sampling instrumentation, exposure monitoring apparatus, and various types of media for air sampling a variety of contaminants. Our excellent working relationships with nationwide safety suppliers and laboratories enable us to secure other types of sampling equipment as necessary to conduct any type of industrial hygiene evaluation.

APPENDIX B

QUALITY ASSURANCE PROJECT PLAN

Kootenai Development Company

Flyway Property

Quality Assurance Project Plan (QAPP)

Prepared by:

Remedium Group, Inc.

A Subsidiary of W. R. Grace & Co.

6401 Poplar Ave., Suite 301

Memphis, TN 38119-4840

Contents

| | |
|--|--------|
| Section 1 – Project Management..... | B-1-1 |
| 1.1 Project Organization..... | B-1-1 |
| 1.1.1 Remedium Group, Inc..... | B-1-2 |
| 1.1.2 Remedium Management..... | B-1-4 |
| 1.1.3 Quality Assurance Organization..... | B-1-5 |
| 1.2 Background and Purpose..... | B-1-5 |
| 1.3 Project Description..... | B-1-5 |
| 1.4 Quality Objectives and Criteria for Management..... | B-1-5 |
| 1.4.1 Data Quality Objectives..... | B-1-6 |
| 1.4.2 Data Management Objectives..... | B-1-7 |
| 1.4.2.1 Quality Assurance Guidance..... | B-1-7 |
| 1.4.2.2 Precision, Accuracy, Representativeness Completeness, and Comparability Criteria..... | B-1-8 |
| 1.4.2.3 Field Measurements..... | B-1-10 |
| 1.4.2.4 Laboratory Analysis..... | B-1-11 |
| 1.5 Special Training Requirements..... | B-1-12 |
| 1.6 Documentation and Records..... | B-1-12 |
| Section 2 – Measurement an Data Acquisition..... | B-2-1 |
| 2.1 Sample Process Design..... | B-2-1 |
| 2.2 Sampling Methods Requirements..... | B-2-2 |
| 2.2.1 Sampling Equipment and Preparation..... | B-2-2 |
| 2.2.2 Sample Containers..... | B-2-2 |
| 2.2.3 Sample Collection, Handling, and Shipment..... | B-2-2 |
| 2.3 Sampling, Handling and Custody Requirements..... | B-2-2 |
| 2.3.1 Sample Handling and Field Custody Procedures..... | B-2-2 |
| 2.3.1.1 Sampling, Labeling and Identification..... | B-2-2 |
| 2.3.1.2 Chain-of-Custody Requirements..... | B-2-3 |
| 2.3.1.3 Sample Packaging and Shipping..... | B-2-3 |
| 2.3.1.4 Field Logbook and Records..... | B-2-3 |
| 2.3.2 Laboratory Custody Procedures & Documentation..... | B-2-4 |
| 2.3.3 Corrections To and Deviations from Documentation..... | B-2-4 |
| 2.4 Analytical Method Requirements..... | B-2-4 |
| 2.4.1 Laboratory Quarterly Assurance Program..... | B-2-5 |
| 2.4.2 Methods..... | B-2-5 |
| 2.5 Quality Control Requirements..... | B-2-5 |
| 2.5.1 Field Quality Control Samples..... | B-2-5 |
| 2.5.1.1 Soil..... | B-2-5 |
| 2.5.2 Laboratory Quality Control..... | B-2-5 |
| 2.5.2.1 Laboratory Internal Quality Control Samples..... | B-2-5 |
| 2.5.2.2 Laboratory Quality Control Checks..... | B-2-6 |
| 2.5.3 Internal Quality Control Checks..... | B-2-6 |
| 2.6 Equipment Maintenance Procedures..... | B-2-6 |
| 2.7 Instrument Calibration Procedures and Frequency..... | B-2-6 |
| 2.7.1 Field Instruments..... | B-2-6 |
| 2.7.2 Laboratory Instruments..... | B-2-6 |
| 2.8 Acceptance Requirements for Supplies..... | B-2-7 |
| 2.9 Nondirect Measurement Data Acquisition Requirements..... | B-2-7 |
| 2.10 Data Management..... | B-2-7 |

| | |
|--|-------|
| Section 3 – Assessment of Oversight..... | B-3-1 |
| 3.1 Assessments and Response Actions..... | B-3-1 |
| 3.1.1 Assessments..... | B-3-1 |
| 3.1.2 Response Actions..... | B-3-1 |
| 3.2 Reports to Management..... | B-3-2 |
| Section 4 – Data Validation and Usability..... | B-4-1 |
| 4.1 Data Review, Validation, and Verification Requirements..... | B-4-1 |
| 4.2 Reconciliation..... | B-4-2 |

Section 1

Project Management

This QAPP supports the RAWP for the Flyway site located near Libby, Montana. The QAPP was prepared in accordance with EPA *Requirements for Quality Assurance Project Plans for Environmental Data Operations*, QA/R-5, Final (EPA 2001). This section covers the basic area of project management, including the project organization, background and purpose, project description, quality objectives and criteria, special training, and documentation and records.

1.1 Project Organization

Organization and responsibilities specific to this study are discussed in this section. Remedium will provide the necessary technical and field staff to perform sampling and reporting aspects of the project. Analytical services are provided through RJ Lee Group, Inc. analytical laboratory located in Monroeville, PA.

1.1.1 Remedium Group, Inc. (Remedium)

The remedial project coordinator (RPC), Mr. Robert Marriam, is Remedium's primary contact for coordinating the removal action work at the Flyway site. Mr. Marriam is responsible for the management and coordination of the following activities:

- Defining data quality objectives
- Reviewing all project deliverables
- Maintaining communications with the Project Manager for updates on the status of the response action activities
- Preparation of deliverables

The Remedium PC, Mr. Robert Marriam, is Remedium's primary contact for coordinating the removal action work at the Flyway site. Mr. Robert J. Medler (Remedium Group, Inc.) will act as alternate Project Coordinator with all responsibilities shown for Mr. Marriam. Mr. Alan Stringer (Libby Grace Representative), acting as Project Manager, is responsible for the management and coordination of the following activities:

- Implementing the removal action Scope of Work
- Providing oversight of the sampling
- Assuring that plans are implemented properly
- Informing personnel of any special considerations associated with the project
- Providing site access, if necessary
- Reviewing work progress for each task

1.1.2 Remedium Management

The Remedium management team for the Flyway project is comprised of the following: Project Coordinator (PC), Alternate PC, Project Manager, Excavation and Equipment Contractor, Sample Coordinator, Air Monitoring Manager, Quality Assurance Manager(s), and Project Quality Assurance Coordinator(s).

The following personnel are assigned to this project:

| | |
|--|---|
| Project Coordinator | Robert Marriam |
| Alternate PC | Robert J. Medler |
| Project Manager | Alan Stringer |
| Excavation and Equipment Contractor | Mike Chapman (Mike Chapman Enterprises) |
| Sample Coordinator | Patrick McGurren (Koch Environmental Health, Inc.) |
| Air Monitoring Manager | Patrick McGurren (Koch Environmental Health, Inc.) |
| Quality Assurance Manager(s) | Robert Marriam Robert J. Medler |
| Project Quality Assurance Coordinator(s) | Robert Marriam Robert J. Medler |

The Remedium PC and Alternate PC for this removal action work are Mr. Robert Marriam and Mr. Robert J. Medler. Mr. Marriam and Mr. Medler will be responsible for the overall management and coordination of the following activities:

- Maintaining communications with EPA regarding the status of this project
- Supervising production and review of deliverables
- Reviewing analytical results
- Tracking of planned budgets and schedules
- Incorporating and informing EPA of changes in the RAWP, HASP, and other project documents
- Providing oversight of data management
- Notifying the appropriate personnel immediately of significant problems affecting the quality of data or the ability to meet project objectives
- Using sampling data in site remediation decision making
- Preparing weekly status reports
- Reviewing analytical results

The Remedium Project Manager (PM) for this removal action work is Mr. Alan Stringer.

Mr. Stringer is responsible for the daily management of the following activities:

- Overseeing excavation operations in the field
- Notifying the PC of significant problems which may affect the quality of the data or the ability to meet project objectives
- Scheduling personnel and material resources
- Implementing sampling and analysis aspects of the cleanup
- Organizing and conducting periodic meetings with onsite facility personnel
- Providing oversight of daily and periodic report preparation
- Coordinating work activities including sampling
- Ensuring that sampling is conducted in accordance with pertinent SOPs and that the quantity and location of all samples meet the requirements of this RAWP
- Scheduling and conducting required sampling and monitoring activities

The Excavation and Equipment Contractor for this remediation is Mr. Mike Chapman.

Mr. Chapman is responsible for the overall management and coordination of the following activities

- Overseeing operation and maintenance of excavation and equipment activities
- Conducting tailgate safety meetings with truck drivers

Mr. Patrick McGurren is the Sample Coordinator for all on site PCM analysis and sample collections. Mr. McGurren is responsible for the following:

- Maintaining proper chain-of-custody forms and sample labels for proper transfer of the samples to the analytical laboratories
- Preparing and shipping samples to the analytical laboratories
- Maintaining sampling equipment
- Perimeter air monitoring

Mr. Patrick McGurren will receive the data directly from the laboratories. Remedium will provide a QA/QC review of the field data package, ensuring that the data, with backup instrument calibration and standard information, is included.

Mr. Patrick McGurren will conduct the soil sampling. Mr. McGurren will also conduct air sampling as per the RAWP.

1.1.3 Quality Assurance Organization

Remedium's QA Managers and QA Coordinators are Mr. Robert Marriam and Mr. Robert J. Medler and will implement the QA program. The QA manager has the authority to objectively review projects and identify problems and the authority to use corporate resources as necessary to resolve any quality-related problems.

The Project QA Coordinators for this project will be responsible for the following:

- Verifying that corrective actions resulting from staff observations, QA/QC surveillances, and/or QA audits are implemented
- Reviewing and approving the project-specific plans
- Directing the overall project QA program
- Maintaining QA oversight of the project
- Reviewing QA sections in project reports, as applicable
- Reviewing QA/QC procedures applicable to this project

- Initiating, reviewing, and following up on response actions, as necessary
- Take corrective action as needed
- Arranging performance audits of measurement activities, as necessary
- Provide written reports on the QA/QC activity

1.2 Background and Purpose

Site background and history are provided in the RAWP. The purpose and objectives of these sampling and analysis efforts are discussed in the RAWP and in the Sampling and Analysis Plan (see Appendix C). The purpose of this Quality Assurance Project Plan (QAPP) is to provide guidance to ensure that all environmentally related data collection procedures and measurements are scientifically sound and of known, acceptable, and documented quality and conducted in accordance with the requirements of the project.

1.3 Project Description

A description of this project is provided in the RAWP. Samples will be analyzed for asbestos only in our 28-Grid area and impacted Riverbank area. Samples in the Transformer area will be analyzed for PCBs only. Sampling activities and all associated procedures are described in detail in the RAWP.

1.4 Quality Objectives and Criteria for Measurement

This section provides internal means for control and review of the project so that environmentally related measurement and data collected are of known and acceptable quality. The subsections below describe the data quality objectives (DQOs) (Section 1.4.1) and data measurement objectives (Section 1.4.2).

1.4.1 Data Quality Objectives

The DQO process is a series of planning steps based on scientific methods that are designed to ensure that the type, quantity, and quality of environmental data used in decision-making are appropriate for the intended purpose. EPA has issued guidelines to help data users develop site-specific DQOs (EPA 2000). The DQO process is intended to:

- Clarify the study objective
- Define the most appropriate type of data to collect
- Determine the most appropriate conditions from which to collect the data
- Specify acceptable levels of decision errors that will be used as the basis for establishing the quantity and quality of data needed to support the design

The goal of the DQO process is to "help assure that data of sufficient quality are obtained to support remedial response decisions, reduce overall costs of data sampling and analysis activities, and accelerate project planning and implementation."

The DQO process specifies project decisions, the data quality required to support those decisions, specific data types needed, data collection requirements, and analytical techniques necessary to generate the specified data quality. The process also ensures that the resources required to generate the data are justified.

The Flyway remediation project has been reviewed by the USEPA and its contractors on several occasions and the problems have been defined as well as the required sampling. For this portion of the project, the decision making steps have already been undertaken by USEPA.

The issues are restated below:

1. Removal activities will be performed at the site in areas that are known to contain asbestos contamination. Perimeter air monitoring samples will be collected during soil removal activities.
2. Confirmation samples of the soil will be collected once all contamination has been removed from the designated property.
3. During intrusive work on the property (i.e., excavation of contaminated soil), the potential for asbestos fibers to migrate offsite increases. Engineer controls, such as applying a water spray, are employed to minimize the release of asbestos

fibers to adjacent properties. To determine the effectiveness of the engineering controls, perimeter air samples will be collected. Detectable amounts of asbestos fibers in monitoring air samples indicate that engineering controls and work practices need to be re-evaluated and/or adjusted.

4. During cleanup activities, personal air samples will be collected from the workers for health and safety purposes, to ensure they use appropriate level of protection.

Since the basic parameters involving sampling (both air and soil) were established by EPA, there is no real discretionary action on the part of the Remedium Group, Inc.

Confirmatory soil samples as collected will involve:

1. At least 2 kilogram samples.
2. Analysis for asbestos using Polarized Light Microscopy (PLM) in procedures established in SOP #SRC-Libby-3 (Rev. 0).
3. Surface samples will be taken (i.e., 1"-6").
4. Samples will be collected in accordance with SOP CDM-Libby 05 (Rev. 2) and SOP ISSI-Libby-01 (Rev. 7).
5. One composite confirmatory soil sample will be taken for every 200 square feet.
6. Documentation will follow the procedures found in Appendix G – Document Control Plan.
7. See Sampling and Analysis Plan, Appendix C, for additional details.

RJ Lee Group, Inc. (analytical laboratory to be used) is familiar with asbestos analysis and can conform to all requirements found in this QAPP.

1.4.2 Data Measurement Objectives

Every reasonable attempt will be made to obtain a complete set of usable data. If a result cannot be obtained or is rejected for any reasons, the effect of the missing data will be evaluated by Remedium. In addition, the Sampling and Analysis Plan (see Appendix C) provides guidance to ensure that samples obtained are representative of the media at the site.

1.4.2.1 Quality Assurance Guidance

The field QA program has been designed in accordance with EPA's Guidance for the DQO Process (EPA 2000), and the EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations (EPA 2001).

1.4.2.2 Precision, Accuracy, Representativeness, Completeness, and Comparability Criteria

Precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters are indicators of data quality. PARCC goals are established for this investigation to aid in assessing data quality. The following paragraphs define these PARCC parameters in conjunction with this project.

Precision. The precision of a measurement is an expression of mutual agreement among individual measurements of the same property taken under prescribed similar conditions. Precision is quantitative and most often expressed in terms of relative percent difference (RPD). Precision of reported results is a function of inherent field-related variability plus laboratory analytical variability, depending on the type of QC samples. Contribution of laboratory-related sources to overall variability will be measured through various laboratory QC samples. The RPD can be calculated for each pair of duplicate analyses using the following equation:

$$\text{RPD} = \frac{S - D}{[(S + D)/2]} \times 100$$

Where:

$$\begin{array}{ll} S & = \text{First sample value (original value)} \\ D & = \text{Second sample value (duplicate value)} \end{array}$$

Accuracy. Accuracy is the degree of agreement of a measurement with an accepted reference or true value and can be used as a measure of the bias in a system (i.e., if all results are biased in the same direction). Accuracy is quantitative and usually expressed as the percent recovery (%R) of a sample results. The %R is calculated as follows:

$$\%R = \frac{\text{SSR} - \text{SR}}{\text{SA}} \times 100$$

Where:

$$\begin{array}{ll} \text{SSR} & = \text{Spiked sample result} \\ \text{SR} & = \text{Sample result} \end{array}$$

SA = Spike added

Ideally, it is desirable that the reported concentration equals the actual concentration present in the sample. Analytical data can be evaluated for accuracy using spiked samples [e.g., matrix spikes (MSs) and laboratory control samples (LCS)].

Representativeness. Representativeness expresses the degree to which sample data represent:

- The characteristic being measured
- Parameter variations at a sampling point
- An environmental condition

Representativeness is a qualitative and quantitative parameter that is concerned with the proper design of the sample plan, sampling procedures, and the absence of sample contamination. Acceptable representativeness will be achieved through (1) careful, informed selection of sampling locations, (2) selection of testing parameters and methods that adequately define and characterize the extent of possible contamination and meet the required parameter reporting limits, (3) proper collecting and handling of samples to avoid interferences and prevent contamination and loss, and (4) collection of a sufficient number of samples to allow characterization. Representativeness is a consideration that will be employed during all sample location and collection efforts. The representativeness can be assessed qualitatively by reviewing the procedures and design of the sampling event and qualitatively by reviewing the blank samples. Review of blank samples consists of averaging the field blank results and subtracting from the analytical results before reporting. Any samples represented by a field blank having a result in excess of the detection limit will be rejected.

Completeness. Completeness is a measure of the amount of usable data obtained from a measurement system compared to the amount expected to be obtained under correct normal conditions. Usability will be determined by evaluation of the PARCC parameters excluding completeness. Those data that are evaluated and not rejected are usable. Completeness will be calculated after data validation. A completeness goal of 90 percent is projected for the data

set collected for the activities at the site. If the completeness goal of 90 percent is not met, additional sampling will be ongoing until it adequately achieves project objectives.

Completeness is calculated using the following equation:

$$\% \text{ Completeness} = (\text{DO}/\text{DP}) \times 100$$

Where:

DO = Data obtained and usable
DP = Data planned to be obtained

Comparability. Comparability is a qualitative parameter. Consistency in the acquisition, handling, and analysis of samples is necessary for comparison of results. Data developed under this investigation will be collected and analyzed using EPA-approved analytical methods and QC measures to ensure comparability of results with other analyses performed in a similar manner.

Sensitivity. Sensitivity, although not a PARCC parameter, will be evaluated for this project. The achievement of acceptable reporting limits depends on instrument sensitivity and matrix effects. Therefore, it is important for the laboratories to monitor the sensitivity of data-gathering instruments to ensure good data quality through constant instrument performance. Instrument sensitivity will be monitored by the laboratories through the analysis of preparation blanks. Remedium will evaluate sensitivity during the entire project by ensuring that reporting limits are at or below the project required reporting limits. Reporting limits are included in the RAWP.

1.4.2.3 Field Measurements

No field measurements will be performed during this investigation. However, air perimeter sampling will be conducted. Therefore, air sampling equipment will require calibration. The air sampling equipment will be calibrated in accordance with equipment guidelines and manuals.

1.4.2.4 Laboratory Analysis

Soil samples collected under this QAPP will be analyzed for asbestos in the 28-Grid area and the Riverbank area and for PCBs in the Transformer area. The analytical methods are as follows:

- PLM
- PCBs

Samples will be submitted to RJ Lee Group, Inc. Prior to shipping samples, sampling personnel will ensure that the laboratory is ready to receive and analyze samples, can provide necessary data packages, and can provide an electronic copy of the data. The laboratories will submit analytical data reports to Remedium. The data reports will contain a case narrative that briefly describes the number of samples, the analyses, and any noteworthy analytical difficulties or QA/QC issues associated with the submitted samples. The data report will also include signed chain-of-custody forms, container receipt forms, analytical data, and a QC package. The laboratories will provide an electronic copy of the data to Remedium.

Reporting Limits

The reporting limits are the minimum levels that the laboratories will report without a qualifier. It is therefore important for the laboratory to monitor the sensitivity of data-gathering instruments to ensure data quality through constant instrument performance checks.

Holding Times and Preservation

There are no required holding times or preservatives for asbestos. Any holding times for the PCB analysis will be followed according to the PCB method.

Quality Control Analyses

Project analytical laboratories will follow all laboratory QC requirements as outlined in their respective statements of work, or in the handbook of laboratory analytical methods and references (EPA 2003), as applicable. Laboratory QC may be measured by the preparation and analysis of laboratory duplicates, MSs, LCSs, and/or laboratory blanks (i.e., preparation blanks),

or by visual verification or other controls consistent with national standardized laboratory operation programs (e.g., National Voluntary Laboratory Accreditation Program criteria).

1.5 Special Training Requirements

Special training required for this study may include the following:

- Health and safety training, as described in the HASP, including 40 hour Occupational Safety and Health Administration (OSHA) and 8 hour refresher training
- Asbestos Inspector Training

1.6 Documentation and Records

The laboratories will submit the sample data packages as hard copy and electronic version (pdf) to the Remedium Project Coordinator as required by the Remedium subcontract with the laboratory. An electronic data deliverable (EDD) will also be provided to the Remedium Project Coordinator.

Section 2 Measurement and Data Acquisition

This section covers sample process design, sampling methods requirements, handling and custody, analytical methods, QC, equipment maintenance, supply acceptance, and data management. The field procedures are designed so that the following occurs:

- Samples collected are consistent with project objectives
- Samples are collected in a manner so that data represent actual conditions

2.1 Sample Process Design

The general goal of the sampling is to provide information regarding soil confirmation and perimeter air monitoring during and after soil excavation at the Libby site.

2.2 Sampling Methods Requirements

Sampling methods, sample containers, and overall field management is described below.

2.2.1 Sampling Equipment and Preparation

Equipment required for the field investigation for sampling is located in the RAWP.

2.2.2 Sample Containers

Sample containers required for this field investigation will consist of a 1-gallon zip lock plastic bag for the asbestos soil samples and a 4-oz glass jar for the PCB samples.

2.2.3 Sample Collection, Handling, and Shipment

Samples collected during the study may consist of soil and QC samples. All sample collection procedures are outlined in the RAWP.

2.3 Sample Handling and Custody Requirements

Custody and documentation for field and laboratory work are described below, followed by a discussion of corrections to documentation.

2.3.1 Sample Handling and Field Custody Procedures

This section describes sample labeling, field custody procedures, and sample handling.

2.3.1.1 Sample Labeling and Identification

A unique alphanumeric code will identify each sample collected during sampling events (as specified in the RAWP). The coding system will provide a tracking record to allow retrieval of information about a particular sample and to ensure that each sample is uniquely identified. Sample numbers will correlate with locations to be sampled. The sample locations and numbers will be identified in the field logbooks.

Soil samples will be labeled with index identification numbers supplied and maintained by the sample coordinator, and signed out by sampling teams.

Labels will be used in accordance with the Sample Custody Form. Sample labels and/or tags will be completed and affixed to the appropriate sample containers. Preprinted adhesive labels may be used. These labels will be secured with waterproof tape if necessary.

2.3.1.2 Chain-of-Custody Requirements

Chain-of-custody procedures and sample shipment will follow the requirements stated in the Sampling and Analysis Plan (see Appendix C) and the Document Control Plan (see Appendix G) and by the industry. The chain-of-custody record is employed as physical evidence of sample custody and control. This record system provides the means to identify, track, and monitor each individual sample from the point of collection through final data reporting. A completed chain-of-custody record is required to accompany each shipment of samples. A sample chain-of-custody form for RJ Lee Group, Inc. is attached.

2.3.1.3 Sample Packaging and Shipping

Samples will be packaged and shipped in accordance with the SOP and laboratory. These samples will be placed in a plastic bag and in a container.

Custody seals will be placed over at least two sides of the container and secured by tape if custody is released to a non-sampler. All samples will be picked up by a courier and delivered to the laboratory.

2.3.1.4 Field Logbook and Records

Field logbooks will be maintained. The log is an accounting of activities at the site and will duly note problems or deviations from the governing plans and observations relating to the sampling and analysis program. The Flyway Project coordinator will maintain the logbook(s).

2.3.2 Laboratory Custody Procedures and Documentation

Laboratory custody procedures are provided by the laboratory (see attached RJ Lee Group, Inc. SOP-1). Upon receipt at the onsite laboratory, each sample shipment will be inspected to assess the condition of the shipping container and the individual samples. The enclosed chain-of-custody records will be cross-referenced with all of the samples in the shipment. These records will be signed by the laboratory sample custodian and copies will be provided to Remedium in the laboratory report. The sample custodian will continue the chain-of-custody record process by using the chain-of-custody records number on each sample on receipt. It is the laboratory's responsibility to maintain internal logbooks and records throughout sample preparation, analysis, data reporting, and disposal.

2.3.3 Corrections to and Deviations from Documentation

Documentation modification requirement for field logbook entries are described in the Document Control Plan (see Appendix G). For the logbooks, a single strikeout, initialed and dated, is required for documentation changes. The correct information should be entered in close proximity to the erroneous entry.

All deviations from the guidance document controls will be recorded in field logbooks. In addition, any major deviations to field sampling procedures will be documented. Any modifications to chain-of-custody forms will be made on the sample coordinator copy of the form and faxed to the analytical laboratory for documentation purposes.

2.4 Analytical Methods Requirements

The laboratory QA program and analytical methods are addressed below.

2.4.1 Laboratory Quality Assurance Program

Samples collected during this project will be analyzed in accordance with the specific EPA procedure. The purpose of using the specific procedure is to provide analytical data of

known quality and consistency. Analytical laboratories will adhere to QC requirements as established the analytical method used.

2.4.2 Methods

The methods to be used for asbestos and PCB analysis are presented in Section 1.4.2.4.

2.5 Quality Control Requirements

Field, laboratory, and internal office QC are discussed below.

2.5.1 Field Quality Control Samples

2.5.1.1 Soil

Due to the time-critical need to receive soil confirmation sampling results, field QC samples will not be collected. However, disposable field sampling equipment will be used whenever possible.

2.5.2 Laboratory Quality Control

Project analytical laboratories will follow all laboratory QC requirements as outlined in their respective statements of work, or in the handbook of laboratory analytical methods and references (EPA 2003), as applicable. Laboratory QC may be measured by the preparation and analysis of laboratory duplicates, MSs, LCSs, and/or laboratory blanks (i.e., preparation blanks), or by visual verification or other controls consistent with national standardized laboratory operation programs (e.g., National Voluntary Laboratory Accreditation Program criteria).

2.5.2.1 Laboratory Internal Quality Control Samples

QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination. Each type of laboratory-based QC sample will be analyzed at a rate of 5 percent, or one per batch (a batch is a group of up to 20 samples analyzed together), whichever is more frequent. Result of the QC analysis will be included in

the QC package, and QC samples may consist of laboratory duplicates, and laboratory blanks, whichever is applicable, and any other method-required QC samples.

2.5.2.2 Laboratory Quality Control Checks

The laboratories will perform the QC checks required by each analytical method.

2.5.3 Internal Quality Control Checks

Internal QC checks will be conducted throughout the project to evaluate the performance of the project team during data generation. All internal QC will be conducted in accordance with the applicable procedures listed below:

- All project deliverables will receive technical and QA reviews prior to being issued to EPA in any form.
- Completed review forms will be maintained in the project files.
- Corrective action of any deficiencies is the responsibility of the PM.

2.6 Equipment Maintenance Procedures

All field and laboratory equipment will be maintained in accordance with the manufacturers' maintenance and operating procedures.

2.7 Instrument Calibration Procedures and Frequency

Calibration of field and laboratory instruments is addressed in the following subsections.

2.7.1 Field Instruments

No real time field measurements will be conducted during this investigation.

2.7.2 Laboratory Instruments

Calibration of laboratory instruments will be based on written procedures approved by laboratory management and included in the laboratory's QA manual. Instruments and equipment will be initially calibrated and continuously calibrated at required intervals as specified by either the manufacturer or more updated requirements (e.g., methodology

requirements). Calibration standards used as reference standards will be traceable to EPA, National Institute of Standards and Technology, or another nationally recognized reference standard source.

Records of initial calibration, continuing calibration, repair, and/or replacement of laboratory equipment will be filed and maintained by the laboratories. Calibration records will be filed and maintained at the laboratories' location where the work is performed and may be required to be included in data reporting packages.

2.8 Acceptance Requirements for Supplies

Prior to acceptance, all supplies and consumables will be inspected by the Sample Coordinator to ensure that they are in satisfactory condition and free of defects.

2.9 Nondirect Measurement Data Acquisition Requirements

Nondirect measurement data include information from previous sampling events. The acceptance criteria for such data include a review by someone other than the author. Any measurement data included in information from the above sources (i.e., previous sampling event) will determine further action at the site only to the extent that those data can be verified by project staff.

2.10 Data Management

Analytical results are maintained in the Libby version 2 secured project database. Hard copy data reports will be maintained in the project files in the Remedium office in Libby, Montana.

Section 3

Assessment and Oversight

Assessment and oversight reports to management are necessary to ensure that procedures are followed as required and that deviations from procedures are documented. These reports also serve to keep management current on field activities. Assessment and oversight reports are discussed below.

3.1 Assessments and Response Actions

Assessment and corresponding response actions are discussed below.

3.1.1 Assessments

Performance assessments are quantitative checks on the quality of a measurement system and are appropriate to analytical work. Performance assessments for the laboratories may be accomplished by submitting reference material as blind reference (or performance evaluation) samples. These assessment samples are samples with known concentrations that are submitted to the laboratories without informing the laboratories of the known concentration or that they are performance samples. Samples will be provided to the laboratories for performance assessment by EPA if required. Laboratory audits may also be conducted upon request from the EPA RPM.

System assessments are qualitative reviews of different aspects of project work to check on the use of appropriate QC measures and the functioning of the QA system. Any determination or change for project assessments will be performed by the Remedium Project Coordinator. Due to the amount of sampling and the duration of the project, both a field audit and an office audit are scheduled for the site on a one-time basis.

3.1.2 Response Actions

Response actions will be implemented on a case-by-case basis to correct quality problems. Minor response actions taken in the field to immediately correct a quality problem will

be documented in the applicable field logbook and a verbal report will be provided to the Remedium PC. For verbal reports, the Remedium PC will complete a communication log to document that response actions were relayed to him. Major response actions taken in the field will be approved by the Remedium PC and the EPA RPM prior to implementation of the change. Major response actions are those that may affect the quality or the objective of the remediation. Quality problems that cannot be corrected quickly through routine procedures may require implementation of a corrective action request (CAR) form.

3.2 Reports to Management

QA reports will be provided to management whenever quality problems are encountered. Field staff will note any quality problems on field data sheets, or in field logbooks. Remedium's PC will be informed immediately and the problem will be corrected. Weekly reports and change request forms are not required for this work assignment. Monthly QA reports will be developed by the project PC.

- Topics to be summarized regularly may include but not be limited to:
- Document technical and QA reviews that have been conducted
- Activities and general program status
- Project meetings
- Corrective action activities
- Any unresolved problem
- Any significant QA/QC problems not included above

Section 4

Data Validation and Usability

Laboratory results will be reviewed for compliance with project objectives.

4.1 Data Review, Validation, and Verification Requirements

Data is reviewed daily by the Project Coordinator and the sample coordinator to ensure data (e.g., sampling dates and sample volumes, as appropriate) are reported correctly by the analytical laboratory. In addition, data packages are reviewed for completeness prior to distribution.

RJ Lee Group, Inc. will validate data submitted by analytical laboratories. Data validation consists of examining the sample data package(s) against pre-determined standardized requirements. The validator may examine, as appropriate, the reported results, QC summaries, case narratives, chain-of-custody information, raw data, LCS/LCSDs, MS/MSDs, initial and continuing instrument calibration, and other reported information to determine the accuracy and completeness of the data package. During this process, the validator will verify that the analytical methodologies were followed and QC requirements were met. The validator may recalculate selected analytical results to verify the accuracy of the reported information. Analytical results will then be qualified as necessary.

Data verification includes checking that results have been transferred correctly from laboratory data printouts to the laboratory report and to the EDD. Data verification for this project is primarily performed as a function of built-in quality control checks in the Libby project database when data is uploaded. However, the sample coordinator will notify the laboratories and the Project Coordinator of any discrepancies found during data usage.

4.2 Reconciliation with Data Quality Objectives

Once data has been generated, RJ Lee Group, Inc. will evaluate the data to determine if DQOs were achieved. This achievement will be discussed in the measurement report, including

the data and any deviations to the RAWP. Sample data will be maintained in a Microsoft Access database. Laboratory QC sample data will be stored in hard copy (in the project files) and in a separate database.

APPENDIX C

SAMPLING AND ANALYSIS PLAN

Kootenai Development Company

Flyway Property

Sampling and Analysis Plan

Prepared by:

Remedium Group, Inc.

A Subsidiary of W. R. Grace & Co.

6401 Poplar Ave., Suite 301

Memphis, TN 38119-4840

Contents

| | |
|--|-------|
| Section 1 – Introduction..... | C-1-1 |
| 1.1 Site Areas..... | C-1-1 |
| 1.2 Project Management..... | C-1-1 |
| Section 2 – Air Monitoring..... | C-2-1 |
| 2.1 Air Monitoring Sampling Plan..... | C-2-1 |
| 2.1.1 Sample Collection..... | C-2-1 |
| 2.1.2 Laboratory Analysis..... | C-2-2 |
| 2.1.3 CIH Review and Sign-Off..... | C-2-3 |
| 2.1.4 Equipment..... | C-2-4 |
| Section 3 – Soil Sampling Plan..... | C-3-1 |
| 3.1 Impacted Grid Area..... | C-3-1 |
| 3.2 Riverbank Area..... | C-3-1 |
| 3.3 Transformer Area..... | C-3-2 |
| 3.4 Laboratory Analysis..... | C-3-2 |
| 3.5 Soil Sampling Handling and Identification..... | C-3-2 |

Section 1

Introduction

This Sampling and Analysis Plan addresses the proposed work efforts to be implemented at the Flyway site, Libby, Montana.

1.1 Site Area

The site areas to be addressed as part of this sampling and analysis plan consist of:

- Impacted grid area
- The River Bank area
- The Transformer area

Soil from the twenty-eight (28) grid area will be removed and confirmatory soil samples will be collected.

Impacted Riverbank contaminated soil will be excavated along the Kootenai River and confirmatory soil samples will be collected.

The Transformer located outside of the pump house will be removed and properly disposed. A soil sample will be collected adjacent to the Transformer area.

Figure ____ shows each of these site areas.

1.2 Project Management

The project management team will include:

| | | |
|-------------------------------------|---|---|
| Project Coordinator | - | Robert Marriam (Remedium Group, Inc.) |
| Alternate Project Coordinator | - | Robert J. Medler (Remedium Group, Inc.) |
| Excavation and Equipment Contractor | - | Mike Chapman (Mike Chapman Enterprises) |
| Sample Coordinator | - | Patrick McGurren (Koch Environmental Health, Inc.) |
| Air Monitoring Manager | - | Patrick McGurren |

| | | |
|---|---|--|
| Quality Assistance Manager | - | Robert Marriam Robert J. Medler |
| Project Quarterly Assurance Coordinator | - | Robert Marriam Robert J. Medler |
| Health and Safety Officer | | Thomas Koch (Koch Environmental Health, Inc.) |

Section 2

Air Monitoring

The following describes the proposed air monitoring to be provided by Koch Environmental Health, Inc. (KEH) for Remedium Group, Inc. (Remedium) in support of the soil sampling to be conducted at the Flyway site in Libby, Montana. Please note that this sampling plan has been designed to incorporate project-specific changes and/or provide flexibility in altering the plan to safely meet the intent and goals of this work effort. This plan has been developed by a Certified Industrial Hygienist/Asbestos Project Designer and may be altered in the field based on actual project conditions. Any changes to this plan will be coordinated through Remedium or a designated representative, and will be implemented only after approval by Remedium and the EPA. KEH will support Remedium in achieving the objective of the sampling program in the most safe and healthful manner possible and in meeting or exceeding OSHA, EPA, and State of Montana requirements. This plan will apply to soil sampling in the twenty-eight (28) grid area, along the Riverbank, and adjacent to the transformer area.

Industrial Hygienists will use the most efficient sampling and analytical methods and will provide those services necessary to meet the safe completion of each work task. KEH will conduct all asbestos work using personnel trained and certified in accordance with requirements of the EPA (ASHERA) and the State of Montana with respect to Asbestos Professionals.

2.1 Air Monitoring Sampling Plan

All air monitoring and sampling for this project will be conducted in accordance with the project requirements with the intent of meeting the goals of the project in a safe and healthful manner. The KEH Sampling Coordinator will conduct all sampling activities with the designated Remedium representative to ensure that all sample areas are monitored by an experienced asbestos professional. All visual inspections and air monitoring will be conducted in accordance with the EPA and the State of Montana requirements regarding asbestos control. The air

sampling plan for this project involves monitoring via either Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM) methodologies.

KEH will work within the project requirements to implement a sampling strategy designed to efficiently and economically determine airborne asbestos (fiber) levels in and around each sampling area in the interest of protecting human health and the environment. PCM air samples will be collected as appropriate utilizing the NIOSH 7400 Method, A Counting Rule. PCM samples will be used as a general means for monitoring airborne fiber levels in and around each sample area, although this type of analysis is non-specific for asbestos fibers. PCM monitoring is useful in tracking and determining airborne fiber levels and provides an efficient and economic means to assess airborne fiber concentrations as they relate to asbestos removal.

TEM analysis is specific for asbestos fibers and can be used as a tool for determining actual asbestos concentrations in air samples collected. TEM sampling will be used for asbestos determination in airborne samples, as necessary, and will be used for background sampling in all sampling areas, as required. In some cases, both PCM and TEM samples may be collected simultaneously (i.e., side-by-side) for use in determining effective fiber control strategies.

Background perimeter air samples will be collected for TEM analysis prior to sampling to determine ambient airborne contaminant levels. Perimeter air samples will be collected one day prior to sampling at the site at a number of site locations. Perimeter samples will be collected during each day of sampling for PCM analysis at the same location as the background samples. Locations for background and perimeter sampling will be determined in the field. A fixed final location will be field established away from obstructions and will be documented.

2.1.1 Sample Collection

Phase Contract Microscopy (PCM) samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area

of 385 mm². All filters used by KEH are pre-assembled by the manufacturer in three-stage, conductive sampling cassettes with extension cowls. Asbestos removal is a dynamic process and may necessitate altering sampling strategies regarding the numbers, locations, and types (e.g., PCM, TEM) of samples collected in and around each work area. Any changes to sampling strategies will be coordinated through the designated Remedium representative and EPA will be implemented only to add value to the generation of data and to add efficiency to the air monitoring program.

Depending upon weather conditions, high volume air samples will be collected at flow rates between 5.0 and 10.0 liters per minute (L/m) for PCM and TEM sampling. Low volume pumps for personal samples will be operated at .5 to 2.5 liters per minute. KEH representatives will use professional judgment and expertise in determining sample flow rates and locations based upon project conditions. Flow rates will be recorded at the beginning and at the end of the sampling period utilizing an airflow rotameter calibrated against a primary flow calibration instrument (DryCal DC Lite # DCL739). Start times and stop times will be recorded for all sampling periods. KEH will maintain a primary flow calibration instrument onsite at all times during this project and will maintain calibration records onsite for review by the Remedium representative.

2.1.2 Laboratory Analysis

Analysis of all background and perimeter air samples will be analyzed on site by KEH using the PCM method. If required, air samples will be shipped offsite to RJ Lee Group, Inc. for analysis by the TEM method.

2.1.3 CIH Review and Sign-Off

Upon completion of the sampling, a final technical report will be generated that describes the project activities, air sample results, and visual inspection data. All standard operating procedures and technical reports have been developed by KEH's staff CIH to ensure that our

clients are provided reliable technical data. All technical reports for this project will be developed, reviewed, and signed by a staff Certified Industrial Hygienist.

2.1.4 Equipment

KEH maintains a complete inventory of air sampling pumps, calibration equipment, and sampling media necessary to conduct the work at multiple projects and multiple project locations. The inventory for air sampling consists of up to 40 high volume, adjustable sampling pumps, up to 30 low-volume battery-operated pumps, and all of the necessary support and associated electrical and personal protective equipment. All of the rotameters are calibrated against a primary flow calibration standard (Dry Cal DC Lite) quarterly. An inventory of up to 20 high-volume pumps and 10-15 low-volume (i.e., battery) pumps will be maintained onsite to support air monitoring requirements for the project.

KEH battery pumps have a typical run-discharge cycle of approximately 16 hours for full shift coverage when work area conditions do not allow for electric pumps. Multiple battery pump and battery packs will be maintained on site to adequately monitor the project on a daily basis and to allow for charge-discharge cycles, pump failures, and backup capabilities. The inventory also holds other types of IH sampling equipment including respirable particulate cyclones, real-time sampling instrumentation, exposure monitoring apparatus, and various types of media for air sampling of a variety of contaminants. An excellent working relationship with nationwide safety suppliers and laboratories enable KEH to secure other types of sampling equipment as necessary to conduct any type of industrial hygiene evaluation.

Section 3

Soil Sampling Plan

Soil Sampling will be conducted in three (3) areas: the Impacted grid area; the Riverbank area; and the Transformer area. A description of the proposed work efforts and sampling to be conducted in each of these areas is provided below.

3.1 Impacted Grid Area

The Impacted grid area will be excavated. Figure 3-1 shows the aerial limits of the individual grids (100 ft. x 100 ft.) where soil excavation is planned for the 2003 construction season. Soil in these areas will be excavated to a depth of 18 inches below existing grade. At the 18-inch depth, confirmatory soil samples will be collected and analyzed for asbestos by the PLM method. If asbestos is found at levels requiring removal (1 percent or greater), additional soil will be excavated and additional confirmatory soil samples will be conducted at 6-inch depth increments. Maximum soil excavation will be to 4-feet depth below existing grade.

The 100 ft. x 100 ft. grids will be subdivided into 20 ft. x 20 ft. subgrids (see Figure 3-2). A composite soil sample will be collected from five adjacent subgrids. Samples of surface soil will be collected at the approximate center-point of each subgrid (1, 2, 3, 4, and 5, 6, 7, 8, 9 and 10, etc.). Partial grids will be sampled and composited in five aliquots or lesser units for areas without five.

The soil samples will be collected from a 0-6-inch depth interval using a decontaminated trowel or appropriate sampling device.

Each of the soil sample locations will be located using GPS equipment.

3.2 Riverbank Area

Impacted Riverbank soil located along the Kootenai Riverbank will be excavated to a depth of 18". This impacted area consists of one grid as shown on Figure 3-1.

This area will also be gridded off to collect confirmatory soil samples. The sampling procedure will follow the same procedures as described in Section 3.1.

Each of the soil sample locations will be located using GPS equipment.

3.3 Transformer Area

The Transformer located outside of the pump house will be removed and properly disposed. A soil sample will be collected adjacent to this area and analyzed for PCBs.

The soil samples will be collected from the 0-6-inch depth interval with a decontaminated trowel or appropriate sampling device.

The soil sample location will be located using GPS equipment.

3.4 Laboratory Analysis

The confirmatory Grid area and Riverbank soil samples will be analyzed by Polarized Light Microscopy (PLM) for asbestos. The detailed analysis methods and procedures will follow SOP No. SRC-Libby-03 (Revision 0).

The soil sample collected adjacent to the Transformer area will be analyzed for PCBs.

3.5 Soil Sample Handling and Identification

This section provides a brief summary of the soil sample handling procedures and field custody procedures. See the QAPP (Appendix B) for a detailed description of these procedures.

A unique alphanumeric code will identify each sample collected during sampling events. The coding system will provide a tracking record to allow retrieval of information about a particular sample and to ensure that each sample is uniquely identified. Sample numbers will correlate with locations to be sampled. The sample locations and numbers will be identified in the field logbooks.

Soil samples will be labeled with index identification numbers supplied and maintained by the sample coordinator.

Color Photo(s)

The following pages
contain color that does
not appear in the
scanned images.

To view the actual images, please
contact the Superfund Records
Center at (303) 312-6473.

**Libby, Montana
Figure 3-1.
KDC Flyway Property
Flyway Property Sample Labels
Asbestos Levels
In Soil (by PLM)**

Worst Case Samples

- No Sample Data
- <1%
- ≥1%

☐ Removal Areas

Approximate Area:
2.52 Acres

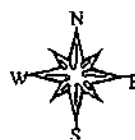
Approximate Area:
0.21 Acres

Approximate Area:
0.87 Acres

Approximate Area:
0.39 Acres

August 2003

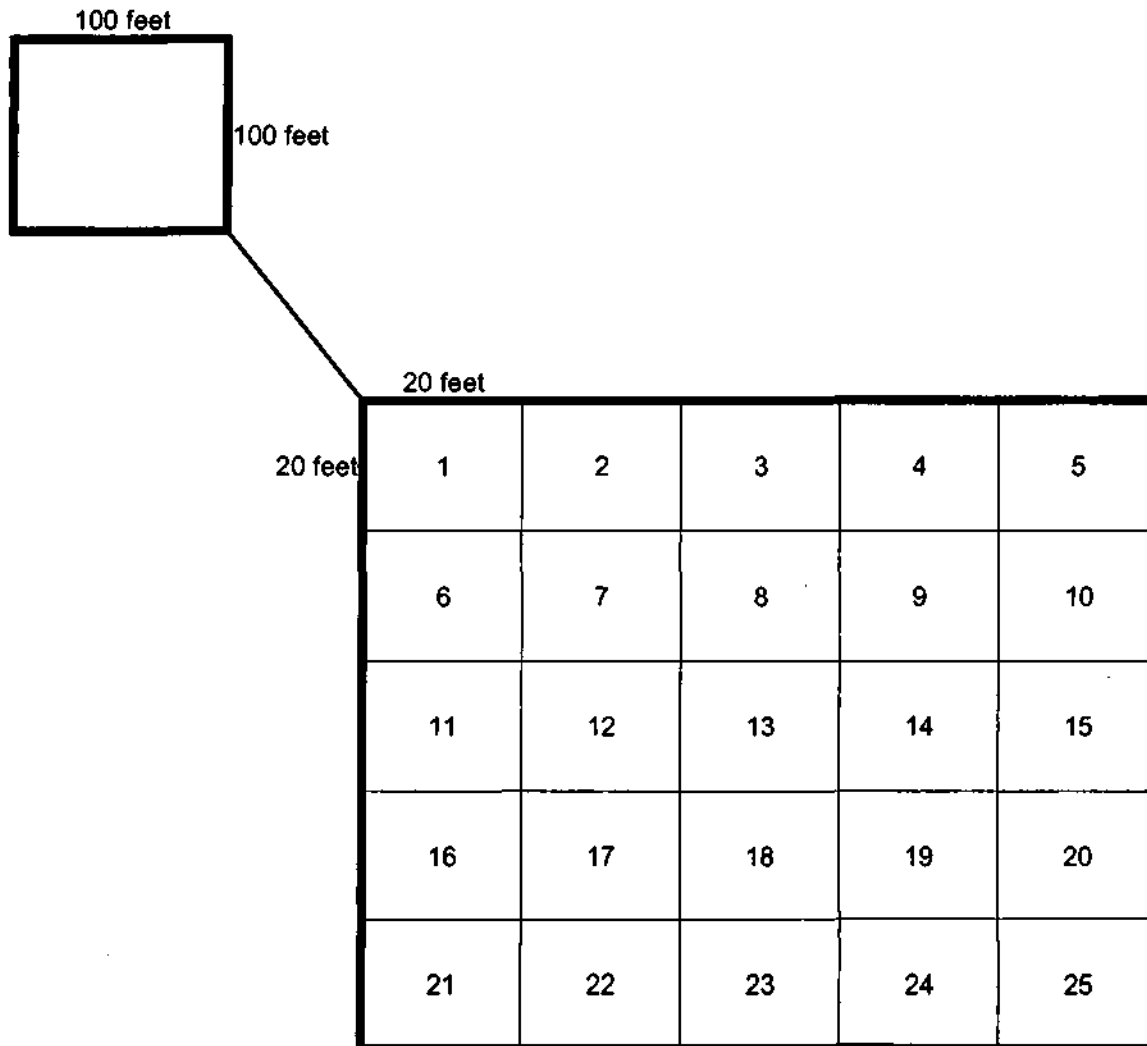
Map Projection UTM Zone 11 NAD83FT



1 Inch = 150 Feet

150 0 150

Soil Sampling Grid Libby, MT



Example: Typical composite soil sample will be generated by combining one center soil sample from each of five sub-grids, as shown above by the highlighted sub-grids.

Fig. 3-2

Request for Laboratory Services

[illegible]

Comments (continue on back of sheet, if necessary):

Please return completed form to one of the following RJ Lee Group labs:

**350 Hochberg Road
Monroeville, PA 15146
(724) 325-1776 Voice
(724) 733-1799 Fax**

530 McCormick Street
San Leandro, CA 94577
(510) 567-0480 Voice
(510) 567-0488 Fax

10503 Battleview Pky
Manassas, VA 20109
(703) 368-7880 Voice
(703) 368-7761 Fax

STANDARD OPERATING PROCEDURE
INITIAL HANDLING OF SAMPLES

Number of Pages: 11
Page Number: 1
Date Issued: February 15, 1988
Revised: March 5, 2001

Prepared By: _____
Drew Van Orden

Approved By: _____
S. Paul Cohen

Approved By: _____
Laboratory Director

STANDARD OPERATING PROCEDURE FOR RECEIVING AND INITIAL HANDLING OF SAMPLES

PURPOSE: This Standard Operating Procedure contains the protocols for receiving and initial handling of samples. These procedures include sample transfer procedures, sample, receiving, sample decontamination and creation of RJ Lee Group projects for each batch of samples.

SPECIAL EQUIPMENT

- Sample receiving hood fitted with a HEPA filter
- Containers for laboratory waste and hazardous waste
- Wet wipes
- Sample bags

Caution: These samples may contain asbestos or other known carcinogens. RJ Lee Group Standard Operating Procedures SOP-12, *Disposal of Waste Materials* and SOP-17, *Sample Storage and Discard or Return*, describe the methods for evaluating and disposing of hazardous wastes. The reader is also referred to RJ Lee Group's Safety Manual for additional information.

PROCEDURES

The procedures for client transfer of samples to RJ Lee Group can be classified as a) RJ Lee Group notification of sample shipment, b) courier pick up of samples (optional), c) delivery of samples, and d) initial handling of samples.

I. RJ Lee Group Notification of Sample Shipment

When a client contacts RJ Lee Group regarding the delivery of samples for asbestos analysis, the following information is to be recorded. This information is to be entered on the Sample Receiving Form (Figure 1) and placed on the client board located in the Sample Coordinator's office. Clients do not always inform the laboratory of incoming samples – this information is important only for rush samples.

Information needed from the client:

- Client name
- Client contact name
- Client contact phone
- Date and time of sample arrival at RJ Lee Group
- Method of sample arrival at RJ Lee Group
 - US Mail
 - US Mail Overnight
 - United Parcel Service (UPS)
 - Federal Express

- Emory
- Air
 - airline's name
 - flight number
 - estimated time of arrival at the airport
 - airbill number
 - number of parcels included in shipment

Number of jobs arriving for analysis at RJ Lee Group

Number of samples arriving per job

Number of sample asbestos analyses to be performed by RJ Lee Group

- if multiple analyses are required, the sequences of asbestos analysis should be designated (if known at this time)

Any special client notation regarding sample asbestos analysis or the arrival of samples for asbestos analysis should be made.

When samples are shipped by air, determine if RJ Lee Group is to contract for courier delivery from the airport to the laboratory.

II. Courier Transfer of Samples

Some clients will request that RJ Lee Group provide courier transport of their samples to the laboratory. When this happens, contact the courier either through the courier phone or the courier beeper number. These numbers are located in the Sample Coordinator's office.

A. For samples arriving at the airport, provide RJ Lee Group's courier with the following information:

1. airline name
2. airline flight number
3. estimated flight arrival time at the airport
4. airbill number
5. number of client parcels arriving

B. For samples to be picked up at another location, provide the courier with the following information:

1. client contact
2. client corporate name
3. street address for sample pick up
4. time for pick up
5. number of client parcels to be picked up

RJ Lee Group's courier will receive the samples at the proper location and deliver them to the laboratory. The courier is responsible for completing any chains of custody attached with the samples.

The Sample Coordinator or a designated RJ Lee Group employee will receive the samples from RJ Lee Group's courier. All samples must be received in the designated sample receiving area to prevent any possible contamination of asbestos to the analysis area.

When the courier arrives at RJ Lee Group, the courier will report directly to the sample receiving area. The courier will call the Sample Coordinator who will then report to the sample receiving area to receive the client samples from the courier.

The following forms must be completed by the Sample Coordinator and RJ Lee Group's courier. (Note—these forms may be completed prior to sample arrival to RJ Lee Group.)

- **Courier Trip Report (Figure 2)**

The original form is placed in the accounting department's mailbox and a copy is placed in the job folder located in the Sample Coordinator's office. Information contained on this form includes:

- courier trip number
- client name
- signature of RJ Lee Group employee who receives the samples for asbestos analysis by RJ Lee Group
- RJ Lee Group job number which is assigned to the client samples
- airline and flight number from which the samples were received by RJ Lee Group's courier for delivery to RJ Lee group
- name of RJ Lee Group courier
- client sample pick-up location
- time of client sample pick up
- time of client sample delivery to RJ Lee Group
- initials of RJ Lee Group employee who receives the client samples for asbestos analysis by RJ Lee Group
- amount RJ Lee Group's courier is paid for delivering the client sample to RJ Lee Group*

This form must be time and date stamped.

- **Courier Package Handling Form (Figure 3)**

The original of this form is placed in the job folder located in the Sample Coordinator's office and a copy of the form will be placed in the accounting department folder.

- sample pick-up location
- sample delivery location
- date and time of sample delivery to RJ Lee Group
- name of client who is sending the samples for asbestos analysis
- RJ Lee Group job or project number assigned to the set of samples received
- airline information
 - name of airline
 - airline flight number
 - flight departure time
 - flight arrival time
 - airbill number
 - number of client parcels
- identity of client parcels
- number of client parcels
- identity of person(s) transporting client parcels to RJ Lee Group
- description of person
- additional comments

This form must be time and date stamped.

The courier trip log book must be completed. This is to record all RJ Lee Group courier transactions and will be stored in the Sample Coordinators office. Information entered in the courier trip log includes:

- courier trip number
- RJ Lee Group project or job number
- client name

* Default to \$40 per delivery

- date and time of sample receipt
- name of RJ Lee Group employee receiving the samples
- courier name

If a chain of custody is enclosed with the samples, the form must be signed by the Sample Coordinator or the RJ Lee Group employee who is designated to receive the samples.

III. Sample Receiving

Samples which arrive at RJ Lee Group may be received in the sample receiving area. This is to ensure that there is no particulate contamination of the sample analysis areas. Visually inspect each sample – if the condition of the package/samples is suspect, place the entire package in a large plastic zip-lock bag before transferring it to the lab.

Upon receipt of a package the following information is recorded in a sample receiving log book:

- date
- client name
- shipping company
- weigh bill number
- RJ Lee Group addressee

A. Air Samples - Cassettes

1. Take the original shipping container containing the samples to the receiving hood in the designated sample handling area. Open the container inside of the hood.
2. Examine the condition of each cassette (identification number, caps, plugs, etc.) and note anything unusual.¹ It may be necessary to photo document unusual conditions.
3. If the cassettes are visibly dusty, carefully wet-wipe each cassette with a damp paper towel; discard the towel in a waste plastic bag. **NOTE:** Care should be taken during wet wiping to make sure labels and identification numbers are not obliterated.
4. Place the clean cassettes in a sample holding box along with the client order, Fed-Ex shipping information, chain of custody, etc.
5. **DO NOT** open any cassettes in the hood. If composition of the filters (cellulose ester or polycarbonate) is not indicated on client order, note this fact on the sample prep sheet.
6. Original shipping container should be disposed of in a plastic bag unless its retention in a plastic bag is considered necessary. Clean cassettes should not be put back in the original container.

¹ Unusual sample condition:

- + Packaged with bulks
- + Missing identification number
- + Damaged cassette or filter membrane
- + Missing cassette cap or top plug
- Missing bottom plug
- + Necessitates an immediate call to the client.

7. Wash hands before leaving the sample handling area.
8. Carry the clean cassettes to the sample log-in office where samples will be individually identified and logged into the database.
9. The Sample Coordinator will then verify the work order client sample numbering sequence with the numbering displayed on the client sample containers. Contact the client if one of the following occurs:
 - duplicate client number is present
 - no client sample number is present on the client sample container
 - client sample number is unreadable on the client sample container
 - client sample is numbered but the client sample number is not present on the work order
 - client sample number is listed on the client work order but no sample is present
10. Client order and information are retained in an identified folder and the samples are stored in the sample holding area awaiting prep.

B. Bulk Samples - Plastic Bags

1. Take the original shipping container containing the samples to the sample receiving hood in the designated sample handling area. Open the container inside the hood.
2. Examine the condition of each sample package and note anything unusual.²
3. For litigation samples or for damaged samples, take a photograph of the sample as received (optional).
4. Mark the client sample identification number on an appropriate-sized Zip-Lok bag. It may be necessary to vacuum the sample bags using the HEPA filter unit to remove extraneous material. Carefully transfer the entire sample package into this bag.
5. Place the samples in a sample holding bag along with the client order, Fed-Ex shipping information, chain of custody, etc.
6. Original shipping container should be disposed of in a plastic bag unless its retention in a plastic bag is considered necessary. Do not put the repackaged samples in the original container.
7. Wash hands before leaving the sample handling area.
8. Carry the bulk samples to the sample log-in office where samples will be individually identified and logged into the database.
9. The Sample Coordinator will then verify the work order client sample numbering sequence with the numbering displayed on the client sample containers. Contact the client if one of the following occurs:
 - duplicate client number is present
 - no client sample number is present on the client sample container

² Unusual sample condition:

- + Missing sample identification number
- + Improperly sealed or ruptured plastic bag (If sample material is loose in shipping box, seal box with duct tape before notifying client).
- + Necessitates an immediate call to the client.

- client sample number is unreadable on the client sample container
- client sample is numbered but the client sample number is not present on the work order
- client sample number is listed on the client work order but no sample is present

10. Client order and information are retained in an identified folder and the samples are stored in the sample holding area awaiting prep.

C. Water Samples - Plastic Bottles

1. Take the original shipping container containing the samples to the sample receiving hood in the designated sample handling area. Open the container inside the hood.
2. Examine the condition of each sample bottle (identification number, seal, etc.) and note anything unusual.³ It may be necessary to photo document any unusual conditions.
3. If the container is dirty, carefully wet-wipe each sample bottle with a damp paper towel; discard the towel in a waste plastic bag. **NOTE:** Care should be taken during wet wiping to make sure labels and identification numbers are not obliterated.
4. Original shipping container should be disposed of in a plastic bag unless its retention in a plastic bag is considered necessary. Clean sample bottles should not be put back in the original container.
5. Wash hands before leaving the sample handling area.
6. Carry clean sample bottles to the sample log-in office where samples will be individually identified and logged into the database.
7. Client order and information are retained in an identified folder and the samples are stored in a refrigerator awaiting prep.

D. Drinking Water Samples - Plastic Bottles

1. In addition to the procedures described in Section C, all drinking water samples for metals analysis must have the pH measured and documented upon receipt in the laboratory. The procedures below (Steps 2 and 3) should be performed after the samples have been logged in and assigned a unique RJ Lee Group sample identification number (Section IV).
2. Using pH paper, measure the pH of each sample. Drinking water samples should be preserved before shipment by acidification to pH 2.
3. Record the pH result in the drinking water pH log notebook.

General Comments

³ Unusual sample condition:

- + Loss of contents of bottle
- + Missing identification number
- + Necessitates an immediate call to the client.

1. Use an indelible marker to identify samples.
 2. A supply of plastic bags for waste materials is provided in the sample handling area. These should be sealed with a wire twist after use and disposed of in waste container.*
 3. A note pad and pen is provided in the sample handling area.
 4. A roll of paper towels is provided in the sample handling area.
 5. A supply of sample holding boxes is provided in the sample handling area.
 6. Zip-Lok bags in two sizes with white write-on area are provided for bulks. Waste plastic bags in two sizes are provided in the sample handling area.
 7. Do not handle air cassettes or water containers in hood immediately after bulks. Wait 2 minutes to allow for complete exchange of air in hood.
 8. Air sampling of hood will be done periodically to ensure that it is contamination-free. Hands must be washed between handling of successive sample batches.
- * Procedure for disposing of asbestos-containing materials (ACM), see SOP-12 for details
Bulks - All ACM will be bagged in 6-mil plastic bags (or double thickness 4-mil bags).
Bags will be labeled as containing asbestos.
Bags will be collected by a proper contractor and disposed of at a hazardous waste site.

IV. Sample Log In and Sample Transfer

RJ Lee Group operates a sophisticated computer database to manage the flow of information, assign and track samples and to generate reports. Detailed operating procedures are found in the Database Handbook. This book is updated on a routine basis and should be referred to when the Sample Coordinator has questions.

Sample transfer between laboratories is accomplished using the following generalized procedures. Actual procedures may vary.

- A. Samples are received at RJ Lee Group laboratory location A.
- B. RJ Lee Group laboratory location A assigns the client samples an RJ Lee Group job number. This number will reflect the RJ Lee Group laboratory location where the samples were received. However, the samples will be assigned RJ Lee Group numbers at the RJ Lee Group laboratory location where the samples are to be analyzed for asbestos.
- C. A notation is made in the job log-in book that the job was sent to another RJ Lee Group laboratory location for asbestos analysis.
- D. The following information must be assigned to the job when the job is sent to the laboratory location B from laboratory location A for asbestos analysis.
 1. Preliminary invoicing information
 - RJ Lee Group job number
 - client name
 - client contact

- client purchase order number
 - client billing address
 - initials of log-in personnel;
 - sample analysis method
 - sample analysis turnaround time
 - number of samples which arrived
2. The samples are then received by RJ Lee Group laboratory location B for asbestos analysis.
 3. The Sample Coordinator at RJ Lee Group laboratory B logs in the samples using the job number assigned by RJ Lee Group laboratory location A.
 4. The samples are analyzed by RJ Lee Group laboratory location B for RJ Lee Group laboratory location A.
 5. The asbestos analysis results are then delivered to RJ Lee group laboratory location A.
 6. RJ Lee Group laboratory location A then reports the asbestos analysis results to the client.

Acknowledgements

1. The original SOP-1 was written by B.A. Smith, February 15, 1988.
2. Previous version is a combination of a draft procedure written by P. L. Powers September 26, 1988 and original SOP-1.
3. Sample transfer between labs is based on a memo from J. Christensen, June 20, 1988.
4. Current version is a modification prepared by S. Paul Cohen on March 5, 2001.

RJ LEE GROUP
Sample Receiving Information

Reservation information by: _____

| Client | Contact Person Name | Phone |
|--------|---------------------|-------|
|--------|---------------------|-------|

Number of samples: _____

| 24 hr | 48 hr | 5-10 | TEM | SEM | Optical | Air | Bulk | Dust |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Scheduled Shipping Date: _____

| | |
|------------------------------------|--|
| <input type="checkbox"/> Confirmed | <input type="checkbox"/> Not Confirmed |
|------------------------------------|--|

Scheduled Arrival Date: _____

Shipped Via: Fed Ex Purolator US Overnight Airborne Air UPS Other

| | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|

Air Information

| | counter to counter | cargo | other |
|--------------|--------------------|-----------------------------------|---|
| Airline | _____ | _____ | _____ |
| Flight # | _____ | | |
| Arrival Time | _____ | | |
| Airbill # | _____ | | |
| Courier | _____ | <input type="checkbox"/> Notified | <input type="checkbox"/> To Be Notified |

COMMENTS:

SHIPMENT RECEIVED

Signed: _____

Date _____ Time _____

Figure 1. RJ Lee Group Sample Receiving Form

Courier Trip Report

Date _____
Time of Delivery _____
Time of Pick-Up _____

Package(s) received by _____
Package(s) sent by _____
Courier Name _____

| <u>Client</u> | <u>Job Number</u> | <u>Pick-up Location</u> | <u>Time</u> | <u>Initials</u> |
|---------------|-------------------|-------------------------|-------------|-----------------|
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |

Amount to be Paid _____
Date Paid _____
Check Number _____

Figure 2. Courier Trip Report Form

**RJ Lee Group
COURIER PACKAGE HANDLING**

F07688.10/28/8

☐ Pickup at _____
☐ Deliver to _____

Date: _____ Time: _____

Client: _____ Project No. _____

Details of Location:

(If Originating Airline Is Different)

| | | | |
|-----------------|-------|----------------------|-------|
| Airline: | _____ | Airline: | _____ |
| Flight No: | _____ | Flight No: | _____ |
| Gate No: | _____ | Airport of Origin: | _____ |
| Time Arrival: | _____ | Airport of Transfer: | _____ |
| Time Departure: | _____ | | |
| Other: | _____ | | |

Identity of Parcels: _____
Number of Parcels: _____
Identity of Person Carrying Parcels: _____
Description of Person: _____
General Information: _____

CHAIN OF CUSTODY

Date

| | | |
|---|-------|-------|
| Samples Relinquished By: | _____ | _____ |
| Samples Received By: | _____ | _____ |
| Samples Delivered to RJ Lee Group By: | _____ | _____ |
| Samples Received For RJ Lee Group By: | _____ | _____ |
| Receipt or Arrival of Package Confirmed By: | _____ | _____ |

This entire form must be submitted as an invoice for payment of services.

Payment for services: Payee _____
Amount _____
Approval _____

Figure 3. RJ Lee Group Courier Trip Report Form.

APPENDIX D

DUST CONTROL PLAN

Dust Control Plan

Flyway Site

Libby, Montana

Prepared by:

Remedium Group, Inc.
A Subsidiary of W. R. Grace & Co.
6401 Poplar Ave., Suite 301
Memphis, TN 38119-4840

Contents

- 1.0 Introduction
- 2.0 Site Location
- 3.0 General Requirements
- 4.0 Dust Control Measures
 - 4.1 Loading and Debris Transportation
 - 4.2 Dust Suppressants
 - 4.3 Area Controls
- 5.0 Dust Control Equipment
- 6.0 Working Hours Per Day
- 7.0 Freeze Protection
- 8.0 Materials Dust Control
- 9.0 Application
- 10.0 Field Quality Control
- 11.0 High Wind Conditions

DUST CONTROL PLAN

1.0 Introduction

The Remedium Group, Inc. (Remedium) Dust Control Plan provides fugitive dust control measures to be utilized during work activities associated with removal of asbestos and vermiculite at the Flyway site in Libby, Montana. Remedium will maintain the project site so as to mitigate visible dust during excavation activities, in compliance with this Dust Control Plan, and will comply with contractor requirements.

2.0 Site Location

The project site is the Flyway site located 4.5 miles northeast of Libby, Montana. The work site encompasses the Flyway site roads and support areas, transportation routes to the former vermiculite mine disposal area and the related mine areas identified for disposal. Alternate disposal locations, if used, would be addressed by addendum to this plan. Such an addendum will be submitted for review and approval by the EPA.

3.0 General Requirements

The general requirements of this plan ensure that adequate resources will be available to control dust 7 days per week and 24 hours per day. These requirements also detail the means and methods that Remedium will use to implement dust control measures during removal activities. Remedium plans to control dust during weekends, holidays, and other hours when work is not in process relying heavily on Best Management Practices, as follows. Remedium plans to haul debris to the appropriate landfill on the same day it is accumulated. Any material removed but not being hauled to the mine disposal area, the same day, will be kept moistened under tarp in the trucks.

To ensure that Remedium has total control of the resources needed to respond to an unforeseen off-hour dust problem, we will have a water truck on call at all times. The excavation and equipment contractor will be responsible for dust control during times when work is not in progress. If the excavation and equipment contractor is not available, we will assign responsibility

to the Project Manager. Remedium will have at least one qualified employee on call to operate trucks and hoses in the off-hours. The names and contact numbers of Remedium management personnel for off-hours response will be supplied.

Remedium dust control measures are designed to control visible dust. The Remedium representative, Mr. Alan Stringer, will be responsible for daily weather tracking to prepare for high wind and/or dusting conditions. Weather information will be recorded on the Remedium Daily Control Report. Remedium will monitor weather conditions prior to leaving the site and during off-hours to get an indication of whether dust controls may be necessary. These administrative, engineering, and physical controls will include but will not be limited to:

- Wetting surfaces with water;
- Applying dust suppressants, where applicable (magnesium chloride on Rainey Creek Road);
- Minimizing soil, road, and surface disturbances;
- Minimizing dusting exposure periods and wind erosion before dust-cleanup measures are applied;
- Curtailing work activities during high site conditions (to be field determined and set based upon location – Flyway or mine site);
- Minimizing drop heights when dumping or transferring material;
- Controlling vehicle speeds on unpaved surfaces and haul roads;
- Restricting traffic to designated roads and corridors;
- Selecting the appropriate equipment;
- Suspending loading or removal operations, if an adequate water supply is not available.

4.0 Dust Control Measures

As specified in Remedium's Dust Control Plan, Section 3.0 General Requirements, Remedium will control all visible dust. This includes dust control during removal activities, sizing and loading materials, and hauling materials to the appropriate disposal site. Remedium proposes to use water to suppress visible dust during operations. Water will be Remedium's main resource for dust control.

Remedium will keep all work areas, including haul roads and access points within the Flyway site and the disposal area at the mine, thoroughly wet during our work activities at the Flyway site and mine site. This will be accomplished using water trucks. Remedium will use the existing hydrant and city water sources presently under a utilization agreement outside the exclusion zone at the Flyway site, the existing well and a holding tank at the mine, and water trucks as necessary to accommodate multiple operational sites. Each water truck will be equipped with spray bars for wetting haul and access roads. Each water truck will be fitted with a power train operation (PTO) pump capable of supplying water in a quantity and at a pressure sufficient to efficiently control dust in remote areas where water truck spray bars may not be used. Excess water use will be avoided to minimize runoff and erosion of adjacent soils.

4.1 Loading and Debris Transportation

During loading, unloading, and material transfer operations, Remedium will minimize material drop heights to reduce emissions of visible dust. Trucks loaded with soils will be covered. After soil is loaded into the truck beds, Remedium will cover all loads before the vehicles leaves the loading areas. During soil loading, additional water will be sprayed to control fugitive dust emissions.

4.2 Dust Suppressants

Water will be the primary dust control measure used. However, other approved dust suppressants may be required during periods when the application of water is inadequate.

Magnesium chloride solution may be applied to Rainey Creek Road prior to initiation of disposal truck activities and reapplied to areas as necessary. See Section 8.0 for dust control materials.

4.3 Area Controls

Remedium will use designated loading areas for each removal location to minimize soil and road disturbances and to control material transfer operations.

5.0 Dust Control Equipment

Remedium will utilize the following equipment for dust control:

- Water truck(s) equipped with spray bars and pressurized hoses;
- Fire hoses (approximately 500 feet of 1- to 1.5-inch hose will be available onsite);
- Valves; and
- Fittings for removal area water application/spraying.

6.0 Working Hours Per Day

Remedium's anticipated work schedule for the duration of the project is Monday through Saturday, 10 working hours per day.

7.0 Freeze Protection

As the work is presently scheduled, temperatures low enough to freeze water tanks, water trucks, or hoses and fittings are highly unlikely in the Libby, Montana area. Even so, to ensure that tanks, hoses, and fittings do not freeze, water use will be supervised so that, if freezing is anticipated, the elevated tank and the water trucks will be empty. Hoses and valves will be left empty and open.

8.0 Materials for Dust Control

The primary material used for dust control will be non-potable water (provided by the City, under use permits, and the well at the mine). In the event that water alone is not sufficient,

magnesium chloride will be added to the water trucks per the manufacturers' recommendations.

Magnesium chloride application may be used on the mine site road, as necessary.

9.0 Application

Remedium will stabilize dust and control visible dust emissions using the following methods:

- Suppressing dust before, during, and after soil excavation and cleanup;
- Suppressing dust during material sizing and loading operations;
- Covering loads of soil hauled between the Flyway and the disposal areas;
- Applying water or other approved dust control measures to the work areas and roads;
- Controlling material drop heights during loading, unloading, and material transfer operations;
- Minimizing and controlling material handling operations;
- Applying other approved methods for controlling dust during specific activities; and
- Avoiding saturation of the surrounding soils, whenever possible, to reduce the potential for erosion.

10.0 Field Quality Control

Remedium will inspect work areas continually to assess the need for additional dust control measures. Dust control activities and inspections will be documented and reported on Remedium Quality Control Reports.

11.0 High Wind Conditions

During high wind conditions, resources will be concentrated on problem dust areas. If high winds are expected, approved dust suppressants may be applied. Work performed in high winds will comply with the HASP and Air Monitoring Plan. If visible dust is observed and suppression measures are unable to eliminate

APPENDIX E

EROSION CONTROL PLAN

Erosion Control Plan

Flyway Site

Libby, Montana

Prepared by:

Remedium Group, Inc.
A Subsidiary of W. R. Grace & Co.
6401 Poplar Ave., Suite 301
Memphis, TN 38119-4840

Contents

- 1.0 Introduction**
 - 1.1 Detailed Plan**
 - 1.2 Structural Practices**
 - 1.3 Inspections**
 - 1.4 Maintenance**
 - 1.5 Record Keeping**

Figures

- 1 Erosion and Sediment Control Plan Typical Silt Fence Installation**
- 2 Erosion Control Plan Typical Hay Bale Installation**
- 3 Erosion Control Plan Typical Hay Bale Installation for Wide Channels**
- 4 Run-on Diversion Control**

Tables

- Table 1 Remedium, Flyway Site, Erosion, Inspection, and Maintenance Report Form**

Erosion Control Plan

1.0 Introduction

Erosion control measures described in this plan pertain to temporary erosion control and sediment control measures during activities associated with excavation at the Flyway site in Libby, Montana. These measures [including but not limited to the installation of sediment barriers (such as silt fence or hay bales), ditches, and drainage controls] will ensure that erosion of soils will be minimized, silting or muddying of drainage channels, the Kootenai River or Rainey Creek will be minimized, and impact to adjacent lands will be minimal. Remedium will install all major temporary erosion and sediment control features prior to the start of any land disturbances. The enclosed Erosion Control Plan Figures (1, 2, 3, and 4) will be used as a guide to installing erosion and sediment control measures. EPA and Soil Conservation Service guidelines were reviewed for general erosion control information. The following sections discuss erosion and sediment control best management practices that will be used during the Flyway site remediation.

1.1 Detailed Plan

The Flyway site is generally flat and runoff from storm events would be minimal relative to infiltration. Silt fencing will be installed as needed on the site. Hay bales will be installed at the discharge end of any swale. Silt fencing will be extended as necessary to mitigate sediment discharge to the adjacent property and the Kootenai River. Any drainage deficiencies surrounding the former Flyway site will be adjusted to tie in with the existing drainage control structures. Either modifications to existing drainage ditches or newly constructed drainage ditches may be required during the removal action and will be addressed during the construction process. Additional containment berms may also be required during the excavation and will be addressed during the construction excavation process.

The following procedures will be followed to minimize mud on public roads:

- Installation of gravel entrances at the junction of the construction site and public roadways. Gravel entrances will be constructed of a clean two-inch minus quarry rock or equivalent; and
- Install a decontamination wash pad facility where all construction equipment and vehicles can be driven onto a pad and washed with water to remove visible signs of soil and mud from the exterior of the equipment or vehicle before leaving the Flyway site. The details of this facility and associated operating procedures are outlined in the Decontamination and HSP plans. Similarly, where the mine is to be used for disposal, an exit wash pad will be utilized for trucks leaving the upper mine area. This pad will be adjacent to the existing well. Again, the disposal area is flat and storm water infiltrates. A secondary line silt fence may be installed at the disposal area, if needed.

Rainey Creek Road will be inspected for points of runoff to Rainey Creek and adjacent slopes. Silt fence and hay bales will be installed at select spots to collect fines mobilized by storm water and the higher traffic impact. During heavy rains trucking will be restricted.

1.2 Structural Practices

The following structural erosion and sediment control practices will be used at the Flyway site:

- Silt fence or staked hay bales will be keyed in place between the sediment source and areas just downgradient, within the construction area, before intrusive construction and excavation activities begin and as necessary;
- Sediment-laden water will be filtered using erosion and sediment control measures such as staked hay bales or staked geotextile silt fence placed in natural or man-made drainage ways. Hay bales and silt fences will be placed in such a manner as to prevent sediment from going around or under them;
- Temporary drainage ditches to divert surface water run on and run off around the site will be constructed as necessary before intrusive construction activities begin. The drainage ditches will either be a V-type or a flat-bottom type, with an average depth of one foot and side slopes of two-to-one. The length of any new ditch will be field determined when field personnel are on site;
- Fill stockpiles will be visually monitored during and after precipitation events. The stockpiles will be secured by covering the plastic when not in use. If sediment laden runoff develops, silt fence will be used to runoff; and
- Temporary berms of compacted soil may be keyed into the existing surface and used to safely manage surface water run on and run off in and around the construction areas.

1.3 Inspections

Remedium shall ensure that qualified personnel visually inspects all the construction areas for erosion daily (more frequently during heavy precipitation) during operations and report as part of the weekly information, action and corrective actions. The inspections will report evidence of sediment entering drainageways and ensure that all best management practices are functioning properly. Any deficiencies (e.g., a silt fence down or clogged) observed and/or reported on a feature must be repaired as soon as practicable. Records of all inspections will be maintained. Areas to be inspected include:

- Disturbed areas of the construction site shall be inspected for evidence of erosion;
- Disturbed areas and areas used for storage of materials (stockpiles, etc.) that are exposed to precipitation shall be inspected for evidence of erosion;
- Locations where vehicles enter or exit the construction site shall be inspected for evidence of off-site sediment tracking;
- Disposal and traffic areas at the mine site prior to disposal area restoration completion; and
- Erosion barrier silt fences and hay bales will be checked for signs of deterioration and sediment accumulation.

1.4 Maintenance

Maintenance of erosion- and sediment-control measures will be conducted as necessary to ensure they are functioning properly. Maintenance procedures include:

- Sediment deposits will be removed from behind silt fences, hay bales, and other controls when they reach a height of one-half of the barrier. Accumulated sediment will be removed and placed with the materials being transported to the disposal site;
- Erosion-control devices will be replaced, repaired or repositioned, as necessary; and
- Removal areas will be finished with compacted gravel as soon as possible after final site grading has been completed.

All repairs and maintenance activities should be implemented as soon as practicable after the inspection, but no later than seven calendar days following the inspection.

1.5 Record Keeping

An inspection and maintenance report form must be completed during each site inspection (at least once every seven calendar days). A copy of a standard form can be found as Table 1.

Copies of completed inspection reports must be kept on site.

A copy of this plan will be kept at the construction site from the start of construction through the final construction inspection.

Table 1. Remedium, Flyway Site, Libby, Montana Site

EROSION
INSPECTION AND MAINTENANCE REPORT FORM

TO BE COMPLETED EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY PRECIPITATION OR SNOWMELT THAT CAUSES EROSION.

Inspector: _____

Date: _____

Signature: _____

Days since last rainfall: _____ Approximate amount of last rainfall: _____

| Area | Disturbed? (Yes/No) | Stabilized? (Yes/No) | Stabilized with? | Condition |
|------|------------------------|-------------------------|------------------|-----------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Stabilization and/or maintenance required: _____

To be performed by: _____ On or before: _____

STRUCTURAL CONTROLS

| Structural Control | Control in Satisfactory Condition: (Yes/No) | Maintenance or Corrective Action Needed | Date Corrected | Comments |
|--------------------|--|---|----------------|----------|
| | | | | |
| | | | | |
| | | | | |

APPENDIX F

TRAFFIC CONTROL PLAN

Traffic Control Plan

Flyway Site

Libby, Montana

Prepared by:

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Memphis, TN 38119-4840

Contents

- 1.0 Introduction
- 2.0 Flyway Site
- 3.0 General Guidelines
 - 3.1 Speed Limits
 - 3.2 Barricades, Signs, Protective Equipment
 - 3.3 Problems
 - 3.4 Fuel

TRAFFIC CONTROL PLAN

1.0 Introduction

This traffic control plan describes procedures that will be followed during the transportation of materials from the Flyway site to the designated mine disposal site. This plan has been established in accordance with appropriate local regulations and requirements and will be maintained throughout the duration of remedial activities at the Flyway site. Traffic control is necessary on the roadway between the Flyway site and Disposal Site due to potential interactions with other vehicles and restricted access on portions of the roadway to the mine.

To implement this plan, Remedium will employ two "flaggers." This plan describes the responsibilities of each of these individuals and their part in maintaining a safe, efficient transportation of waste material from the Flyway site to deposition at the Disposal Site (former W. R. Grace & Co. vermiculite mine).

Remedium Group, Inc. (Remedium) anticipates that up to 7,000 cubic yards of soil will be removed from the Flyway site. This volume is based on an 18-inch deep cut of surface soil to be removed across the affected area outlined in the Remedium Work Plan. Remedium will employ five trucks for hauling the material from the Flyway site to the mine disposal site. Each truck has a capacity of 10 cubic yards and should make approximately seven round trips per day. Thus, an estimated 35 truckloads will be moved per day, over a four-five week period of time.

Mobilization and demobilization activities involve limited staggered vehicular traffic, and will be performed under present Department of Transportation (DOT) regulations and local traffic control measures.

It is important to note that the traffic control procedures and routes described herein assume disposal of Flyway site material at the mine site and at a specific location within the mine area. This plan will require modification under two "other" potential scenarios:

- 1) Adverse weather conditions may require hauling to an alternate disposal site.
- 2) Equipment availability may require hauling to an alternate disposal site.

The alternate disposal site is defined as the gravel pit at the lower pond currently being utilized by the EPA as a temporary disposal site for material removed from private properties in and around Libby.

Therefore, this Traffic Control Plan may be amended pending a final decision regarding the waste disposal. Any plan modification will be submitted for approval by the EPA.

2.0 Flyway Site

The Flyway site is located on the southern end of the screen plant property. The site may be accessed from Highway 37 North.

Access to the Flyway site will be restricted during the removal action (see Remedium Work Plan for details). Designated clean parking areas will be maintained for personnel and authorized visitor vehicles on the south side of the property. Designated equipment parking areas will be maintained within the restricted zone.

Vehicles utilized for waste transportation will enter the Flyway site from the Highway 37 entrance, at the gated entrance station. Prior to entering the Flyway site at the start of a work shift, each driver will be outfitted in a Tyvek® suit and fitted with a half-face respirator (Personal Protection Equipment or PPE). This PPE will be worn during all driving operations within the exclusion zone until both the vehicle and driver are decontaminated. All waste transportation vehicles will have their loads covered and will be decontaminated at the decontamination pad by washing wheels and undercarriage, as needed. The vehicles will be inspected to prevent tracking of material onto the highway and roads. The onsite decontamination pad will be located at the Highway 37 exit.

Flagger #1 and Flagger #2 will be located just north of the Rainey Creek Road entrance and south of the Flyway site exit/entrance. Both flaggers will have radio communication with all the truck drivers.

3.0 General Guidelines

To maintain safe transportation practices, a number of general guidelines has been established and will be shared with all participants involved in waste transportation activities. All personnel will comply with these guidelines. The following is a discussion of speeds not to be exceeded by waste transportation vehicle personnel, barricades and signs, radio communication practices, and vehicle maintenance.

3.1 Speed Limits

- Highway 37 between Flyway and Rainey Creek Road (not to exceed 20 mph);
- Rainey Creek Road: 20 mph. Rainey Creek is restricted from other traffic;
- Disposal Site: less than 5 mph.

3.2 Barricades, Signs, Protective Equipment

Barricades and signs will be placed at the Highway 37/Flyway site and Rainey Creek Road intersection. Flaggers will be equipped with a hardhat, orange traffic vest, Stop/Slow sign and radio. A DOT required sign would be appropriately posted on Highway 37 at least 200' from the flaggers, which will provide a first warning of temporary traffic conditions.

3.3 Problems

The flaggers will use radios to maintain constant communications with each other and the waste transportation vehicles. All vehicles will be equipped with radios in good working order so that logistical information and any problems encountered on the road may be reported immediately.

3.4 Fuel

Waste transportation vehicles will report fuel levels at the end of each day. Refueling will be conducted while waiting to be loaded at the Flyway site and/or local service stations.

Additional traffic control procedures will be documented in writing as an addendum to this Traffic Control Plan, as required.

APPENDIX G

DOCUMENT CONTROL PLAN

Document Control Plan

Flyway Site

Libby, Montana

Prepared by:

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Contents

Section 1 Introduction

Section 2 Document Control

2.1 Security and Document Release Procedure

2.2 Responsibilities Related to Document Control

2.2.1 Project Manager

2.2.2 Field Personnel

2.2.3 Offsite Personnel

2.3 Document Control Number System

2.3.1 Project Number

2.3.2 File Code

2.3.3 Document Number

2.4 Document Control Database

2.5 Filing

2.5.1 Field Documents

2.5.1.1 Daily

2.5.1.2 Weekly

2.5.1.3 Weekly Transfer of Data to Regulatory Agencies

2.5.2 Other Filing Categories

Section 3 Logbook

3.1 Forms

3.2 Daily Logbook Activities

Figures

Figure 1 Document Control Stamp

Figure 2 Standardized Filing System for Environmental Services Performed at the W. R. Grace Libby, Montana Site

DOCUMENT CONTROL

1.0 Introduction

This document presents a Work Plan for activities associated with the control of all documents produced during the project involving the Flyway site removal action. This Work Plan provides the methodology, collection, and Quality Assurance/Quality Control (QA/QC) procedures for tracking documents related to and generated during the execution of the project.

2.0 Document Control

2.1 Security and Document Release Procedure

The Project Coordinator and the Project Manager have access to all files (original and copies). These individuals will retain the key able to lock and unlock the secure area where files will be stored. Records will be stored in the W. R. Grace & Co. offices located on Mineral Avenue in Libby, Montana.

The Project Coordinator is the only individual authorized to release documents to internal or external persons. Release will require written approval by the Remedium Project Coordinator. A transmittal letter from either of those individuals stating the approval of the document release must accompany each document release.

2.2 Responsibilities Related to Document Control

2.2.1 Project Manager

The Project Manager is responsible for the security of all files (original and copies). As stated in Section 2.1, only this individual and the Project Coordinator have a key able to lock and unlock the file storage area.

At the beginning of each day, the Project Manager will distribute log books to the appropriate personnel on site. At the end of each day, the Project Manager will retrieve the log books from these individuals. After the log book pages have been assigned document control

numbers, copied, and filed (see Section 3.2), they will be locked in the secure storage area with the other files.

The Project Manager will assign document control numbers to all documents produced (see Section 2.3). After document control numbers are assigned, each document will be entered into a database (see Section 2.4). The Project Manager will also be responsible for generating various reports related to the document control database, as specified by project management individuals.

2.2.2 Field Personnel

Personnel: Excavation and Equipment Contractor

Each field manager is responsible for retrieving the appropriate log book at the beginning of each work day from the Project Manager. Throughout the day, the log book will be filled out according to Section 3.0. When a form is required, it should be stamped or noted into the log book and completed (see Section 3.1). At the end of the work day, when the Field Manager returns the log book to the Project Manager, any corrections requested by the Project Manager will be made by the Field Manager as outlined in Section 3.2.

2.2.3 Offsite Personnel

Any original documentation generated between offsite personnel will be forwarded to the Project Manager in order for it to be properly filed according to this Work Plan.

2.3 Document Control Number System

Each piece of paper produced during the project will be assigned a document control number using a stamp depicted in Figure 1. The document control number will have the following format: project#.log#.file code.document #.

| |
|---|
| <p style="text-align: center;">Remedium Group, Inc.</p> <p>Project No. _____</p> <p>Building No. _____</p> <p>File Code. Doc No. _____</p> |
|---|

Figure 1 Document Control Stamp

2.3.1 Project Number

The project number is assigned by Remedium Group, Inc.

2.3.2 File Code

Figure H-2 illustrates the various categories for which file codes will be assigned. The subcategories listed under the categories may be added or deleted as deemed necessary by the Project Manager.

2.3.3 Document Number

The document number will be assigned by the document control database as a sequential number based on the order in which documents are entered.

2.4 Document Control Database

The Project Manager is in charge of tracking all documents produced. Hard copies of documents, access, and inventory are controlled by the Project Manager.

Upon entering each day's set of documents into the filing system, the log for each file will be updated. If items are released, a transmittal document will be utilized for information and tracking (see Figure 2).

2.5 Filing

2.5.1 Field Documents

2.5.1.1 Daily

There will be a separate filing system consisting of folders having headings corresponding to days of the week worked (i.e., Monday, Tuesday, Wednesday, etc.). After all field documents are received by the Project Manager, a copy will be made and stamped as "COPY." The COPY will be filed in the appropriate day's folder.

2.5.1.2 Weekly

At the end of each work week, the daily folders will be shipped to the Project Coordinator for review of the week's activities and permanent filing.

2.5.1.3 Weekly Transfer of Data to Regulatory Agencies

Remedium shall submit a written progress report to the EPA and to the state, concerning actions undertaken pursuant to the Consent Order, every seventh day after the date of receipt of the EPA's approval of the Work Plan until termination of the Consent Order, unless otherwise directed in writing by the EPA Project Manager. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered; analytical data received during the reporting period; and the developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems. Subsections will include a weekly Health and Safety Summary and material movement/disposal summary.

2.5.2 Other Filing Categories

The same procedures will be used for filing documents that fall into the following categories (see Figure 2):

- Administration;
- QA/QC;
- Project correspondence;
- Health and safety;
- Non-Remediation and reference information;
- Project deliverables;
- Construction/design;
- Subcontracting;
- Laboratory; and
- Community relations.

When the Project Manager receives a document, it will be assigned a document control number. The document will then be copied and distributed, if needed, or filed. The original will be stamped as "ORIGINAL," while any copies made will be stamped as "COPY." The original version will be filed where appropriate, according to the document control number system. With regard to e-mail, it will be electronically forwarded to the Project Manager, who will print it out and treat it as any other document related to the project.

3.0 Logbook

Each logbook will have pre-printed, consecutively numbered pages and dimensions of approximately 7 inches by 12 inches. The following individuals will be responsible for their own log books:

- Project Manager;
- Excavation & Equipment Contractor.

The following items are required to be recorded in permanent ink in each log book each work day:

- Initials and date at the top of every page;
- Start time;
- Weather;
- Decontamination methods (a previous day's method may be cross-referenced if it is identical);
- PPE level;
- Each entry will have the signature of the individual recording information;
- Equipment and/or procedures used;
- Sample descriptions (time, depth, volume, containers, preservatives, etc.);
- QA/QC samples (field and laboratory);
- Observations;
- Field parameters;
- Maps and photos drawn or taken (and description);
- Lost/voided paperwork; and
- Time of each entry.

The following items are suggested to be included in the log book:

- Serial and model numbers on equipment used;
- Formulas; calculations, etc.;
- Useful phone numbers; and
- Site address.

Any deviations from planned procedures (and reasons for deviation) should be recorded in the log book. If a page is accidentally left blank or there is unused space at the end of a day's

entry, draw a diagonal line through the space and initial and date the line. There should be no erasures in the field log books; errors should be crossed out, initialed, and dated.

3.1 Forms

To reduce the amount of loose and varying information on paper accumulated during the project, the following forms needed to complete the fieldwork will be made into rubber stamps, for log book use, and posted as standard forms or made into electronic versions:

- Daily Field Report;
- Daily Sign-In;
- Containment Log;
- Construction Safety Meeting Report;
- Incident Investigation Report;
- Qualified Operator Training Record;
- Safety Training Record;
- Heavy Equipment Daily Operating Checklist;
- Daily Traffic Control Report; and
- Erosion Inspection and Maintenance Record.

Each manager will have control over the necessary forms or stamps needed to document their respective activities in log books. If a daily form is used, it should be referenced in the log book.

3.2 Daily Logbook Activity

As stated in Sections 2.2.2 and 2.2.3, the Project Manager will distribute a log book to the Excavation and Equipment Contractor at the beginning of the day, and they will return the log books to the Project Manager at the end of the day. Before the Excavation and Equipment Contractor is allowed to leave the site, the Project Manager must verify the completeness of the log books. The

Project Manager will record the following items in the log book during his/her review:

- Date;
- Time;
- Signature; and
- Any comments, changes needed, etc.

If needed, the Field Manager will record the required corrections or changes in the log book as follows:

- Date;
- Time;
- Signature; and
- Changes or corrections made and reasons for doing so.

Any changes will be marked such that it is apparent they were added after the day's activities were completed. After the review is finished, the Field Manager will sign and date the bottom of the page containing the last entry for that day. The Project Manager will assign a document control number to each page of the log book. Each page is copied at least twice, with each copy stamped as "COPY." One copy will be three-hole punched and inserted into either a dedicated binder for that log book or behind a tab denoting that particular log book as a backup in case of misplacement of the log book. The second copy will be filed in the appropriate "day" folder (see Section 2.5.1.1).

APPENDIX H

SITE PHOTOGRAPHS



Photo 1: Pumphouse and KDC Flyway Property Viewed from the West Side of the Kootenai River

Remedium Group, Inc.
6401 Poplar Ave., Suite 301
Memphis, TN 38119

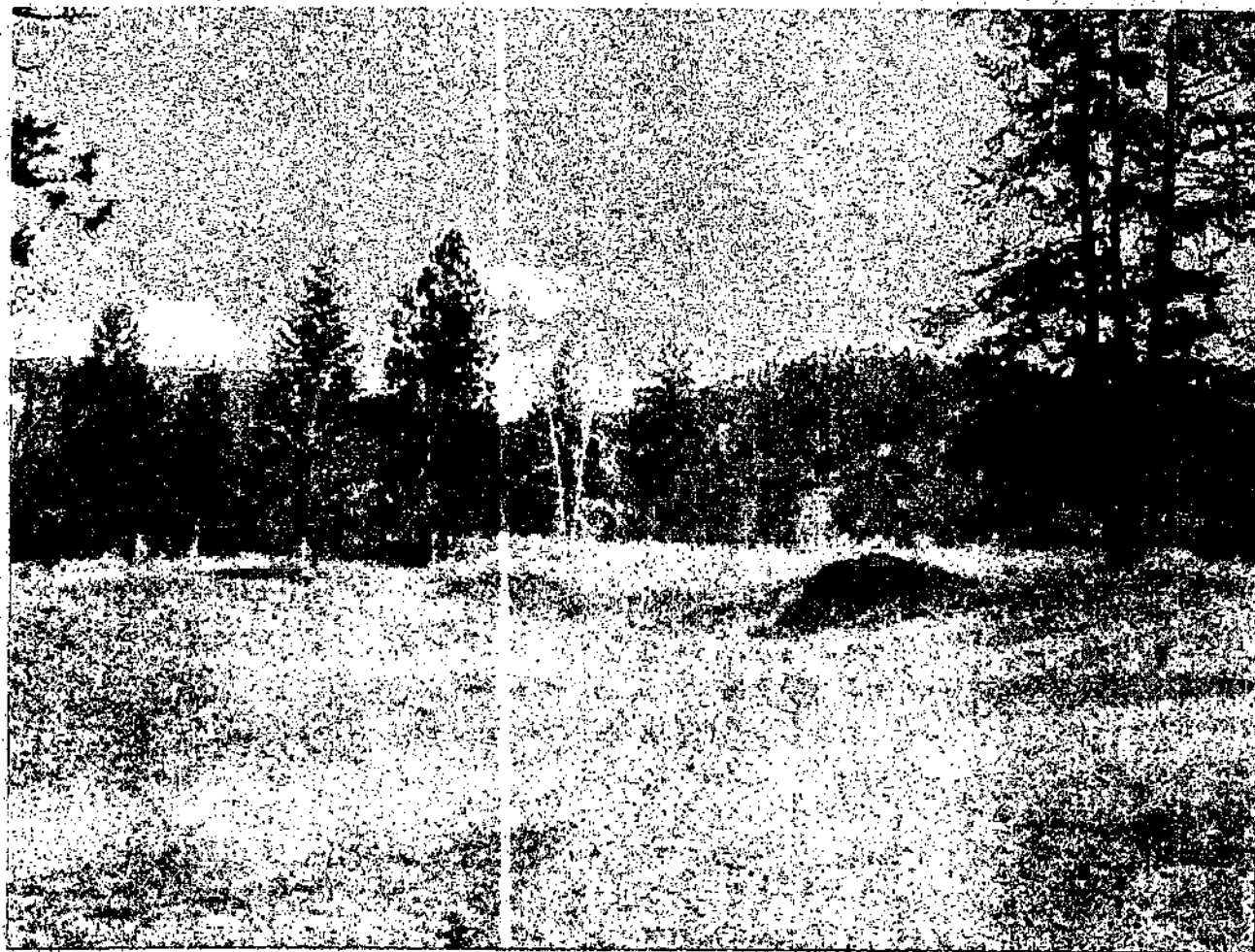


Photo 2: Typical Conditions

Remedium Group, Inc.
6401 Poplar Ave., Suite 301
Memphis, TN 38119

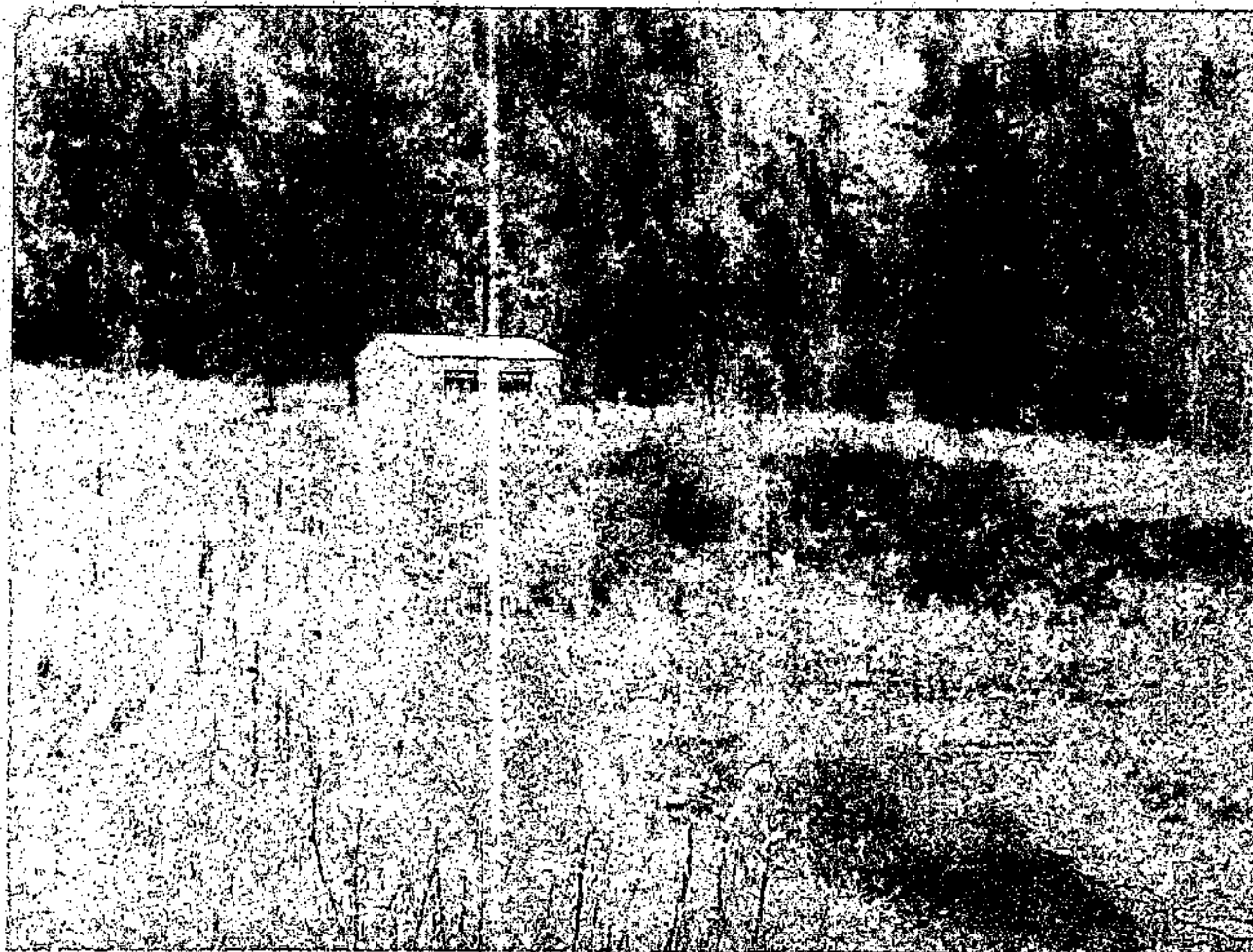


Photo 3: Pumphouse on KDC Flyway Property and Stilling Basin on east Bank of the Kootenai River

Remedium Group, Inc.
6401 Poplar Ave., Suite 301
Memphis, TN 38119



Photo 4: View of River Bank and KDC Flyway Property Facing South

Remedium Group, Inc.
6401 Poplar Ave., Suite 301
Memphis, TN 38119



Photo 5: Typical Conditions

Remedium Group, Inc.
6401 Poplar Ave., Suite 301
Memphis, TN 38119

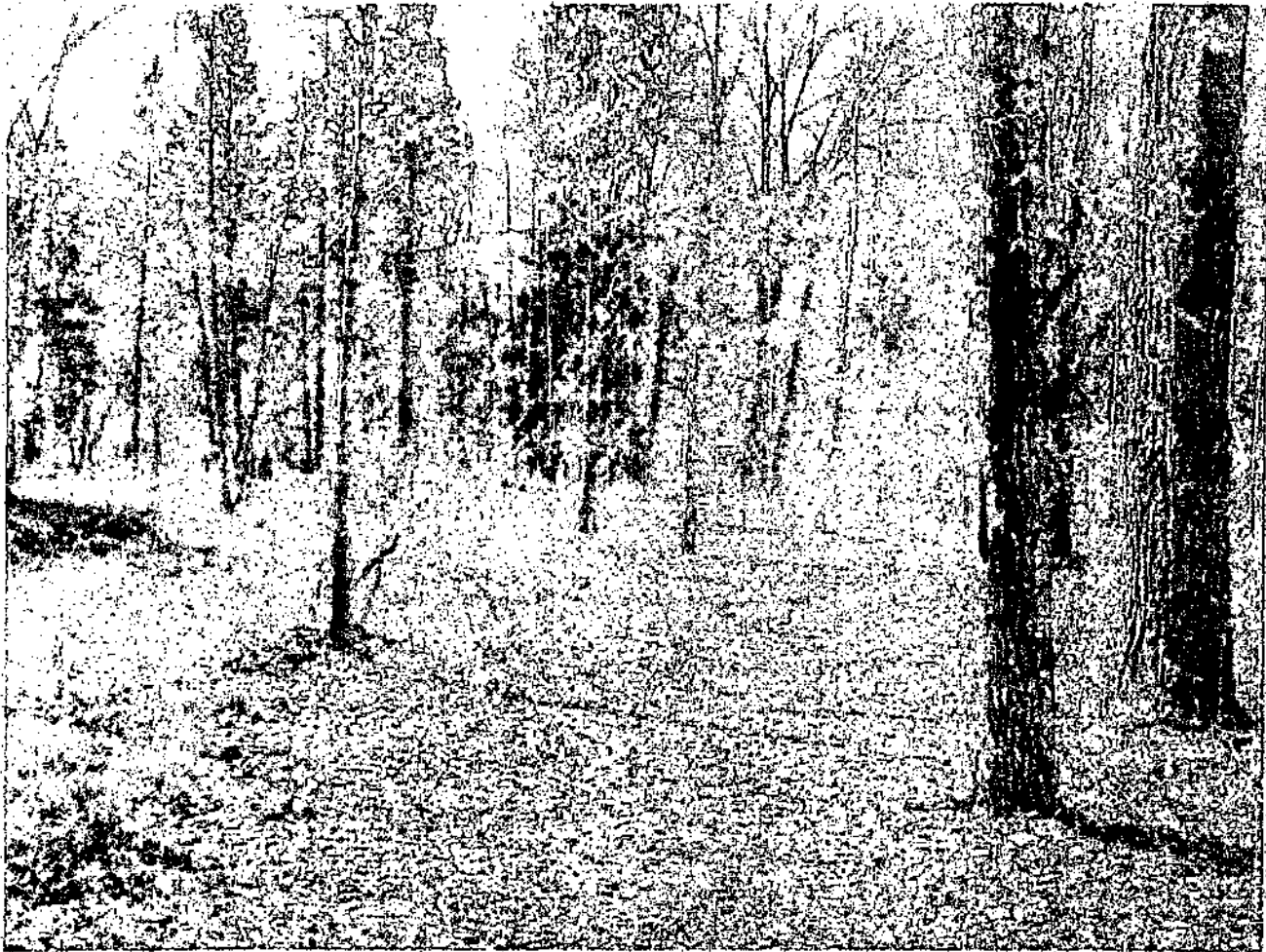


Photo 6: Typical Conditions

Remedium Group, Inc.
6401 Poplar Ave., Suite 301
Memphis, TN 38119

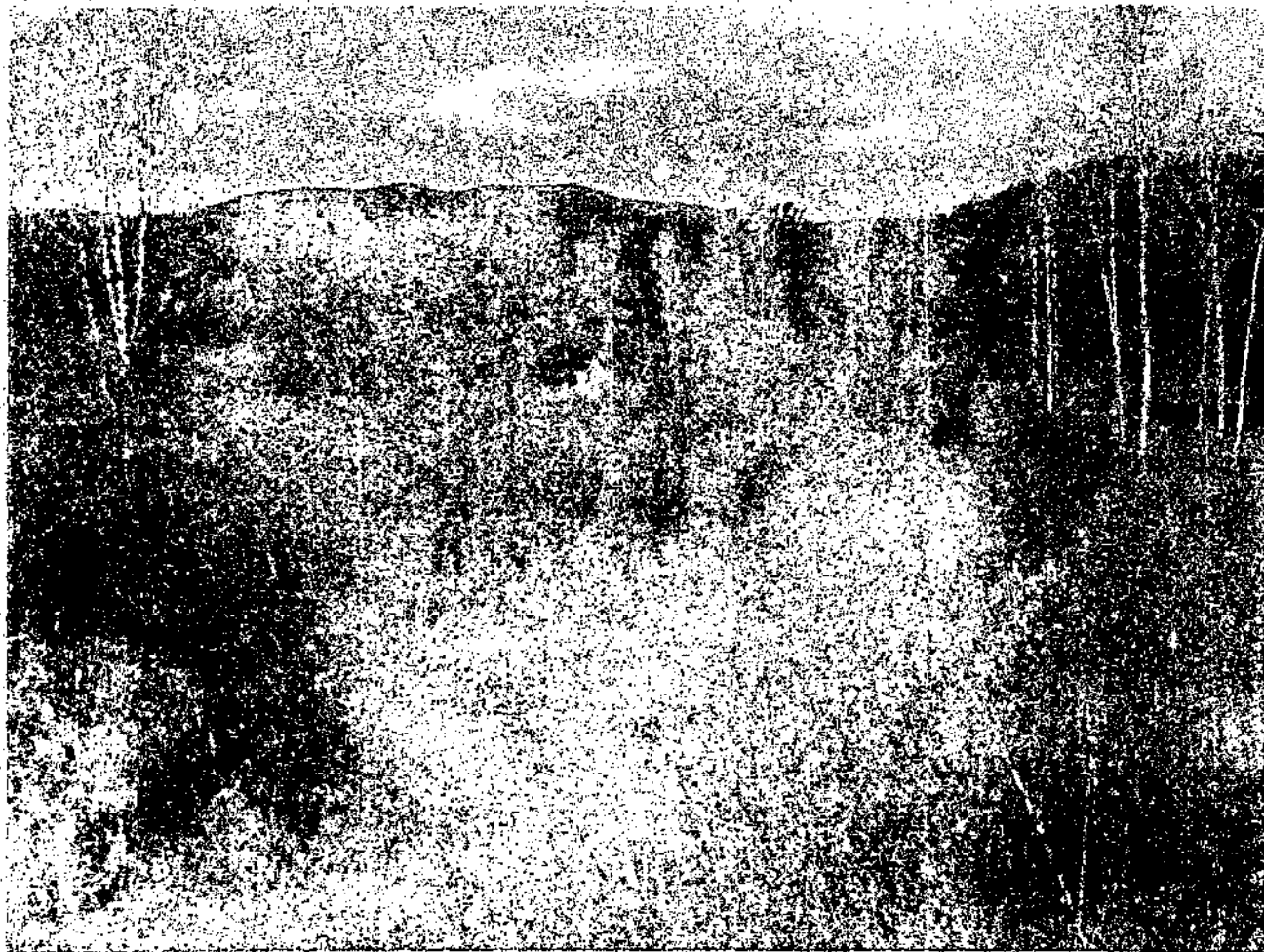


Photo 7: Typical Conditions

Remedium Group, Inc.
6401 Poplar Ave., Suite 301
Memphis, TN 38119

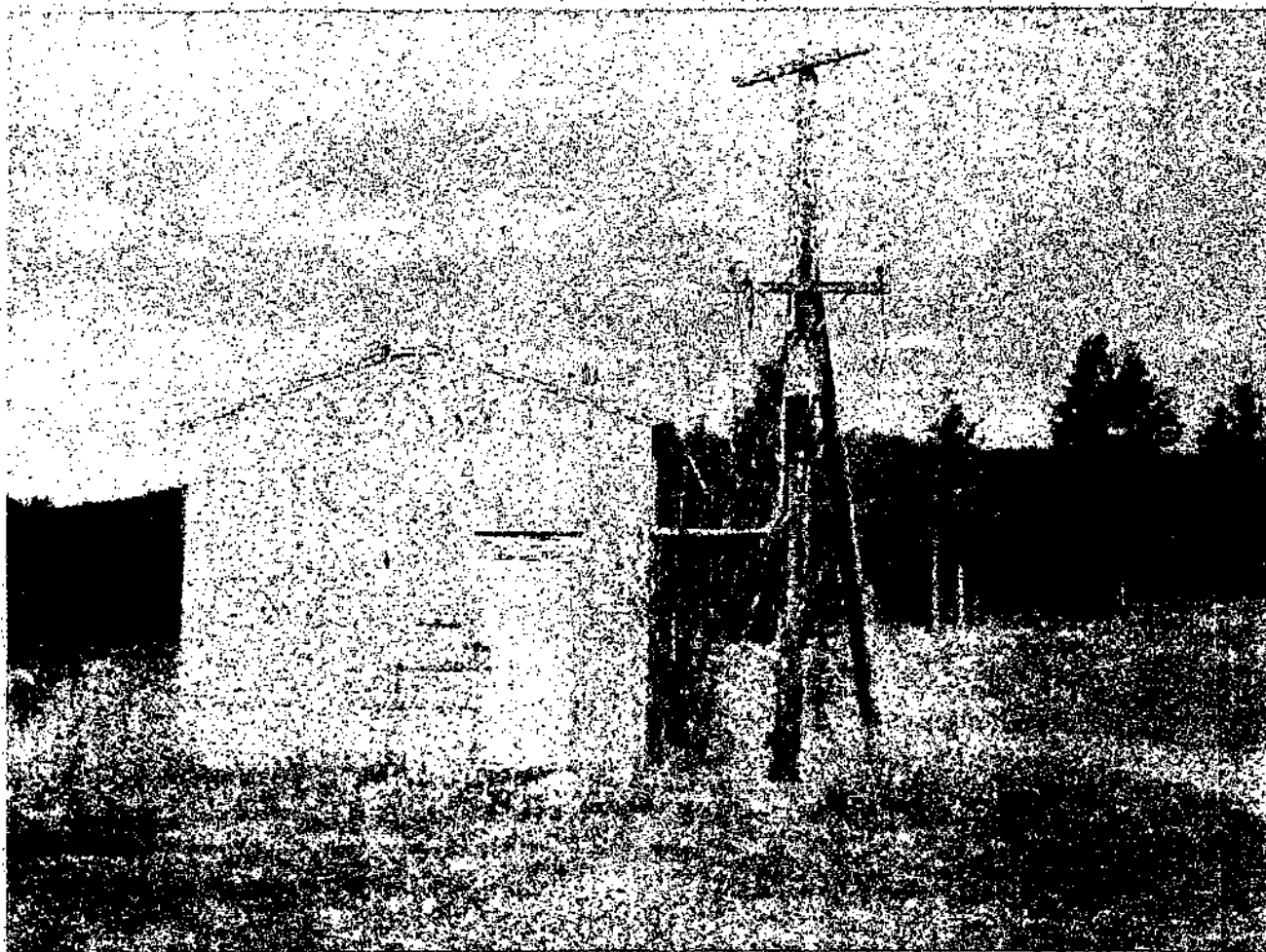


Photo 8: Pumphouse and Disconnected Transformer

Remedium Group, Inc.
6401 Poplar Ave., Suite 301
Memphis, TN 38119

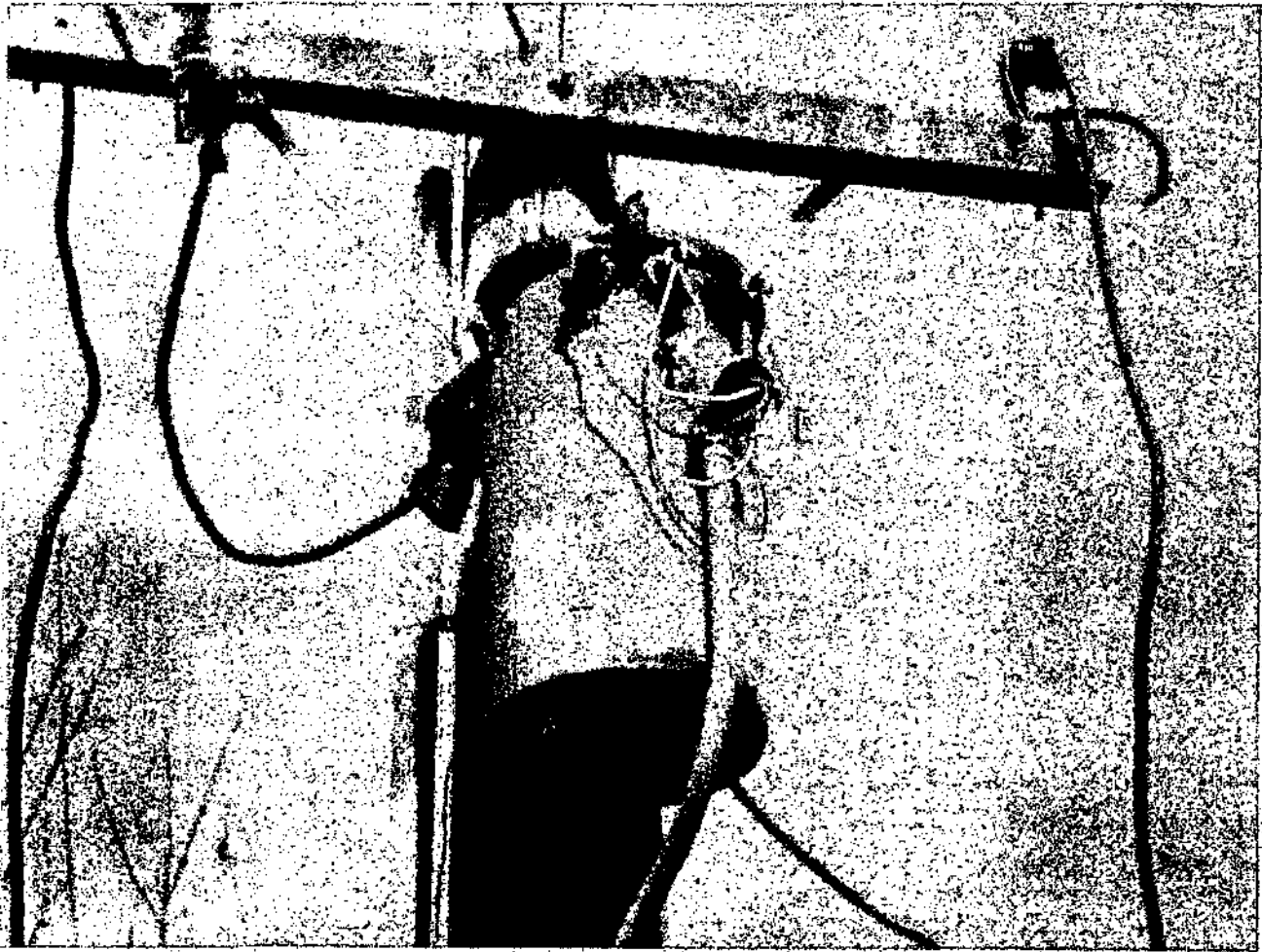


Photo 9: Pole Mounted Transformer at Pump Station

Remedium Group, Inc.
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